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Original Articles.

SOME OBSERVATIONS ON THE MEDICAL TREATMENT OF INFANTILE PARALYSIS.

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THE treatment of infantile paralysis (acute poliomyelitis) is of the greatest importance both to the individual and to the community.

As Mackenzie says, "It attacks apparently the most healthy types, and unless the correct treatment is recognised it ruins physically those it is unable to slay, converting perhaps in a night the healthy child into a cripple."

If infantile paralysis were a disease in which a generally known and accepted line of treatment gave uniformly successful results, it would be superfluous to point out that treatment must be based upon a clear conception of the nature of the disease, and of the pathological processes underlying the symptoms.

Farquhar Buzzard, in his Goulstonian Lecture of 1907, states: "It is an acute specific fever occurring sporadically and epidemically; its essential lesion is an inflammation of the interstitial tissue of the central nervous system due to the presence of micro-organisms or their toxin, probably in the blood, but possibly in the lymph circulating within that system."

Much recent work has been done on poliomyelitis, especially from the pathological point of view, and extensive experimental investigations have been made on the disease in monkeys.

Buzzard's conception of the disease was a distinct advance on the one that this disease was entirely an affection of the anterior cornual cells of the spinal cord and was localised to them.

A more recent and perhaps wider point of view is that there is an acute inflammatory process in the central nervous system over a wide-spread area, and that there are also visceral lesions especially in the lymphatic organs.

The cause of this acute specific fever is stated by Flexner to be a minute filterable micro-organism, which has been secured by him in artificial culture, and is distinctly visible under the higher powers of the microscope. The virus is suspected to enter the body by way of the mucous membrane of the nose and throat.

The conception of the disease which expressed itself only in terms of the old atrophic lesions in the anterior cornual cells was necessarily narrow, and concerned only with the resulting paralysis, which should really be regarded as an incidental occurrence in a general infectious disease. This view for a long time dominated all ideals of treatment, and prevented a hopeful attitude being formulated or maintained; the inherent possibilities of recovery in the muscle were ignored, and no hope was entertained of sufficent anterior horn-cells having survived or recovered.

Mackenzie, who was a pioneer in the field of muscle re-education in infantile paralysis and who is chiefly responsible for this method of treatment, began his work at the muscle end of the neuro-muscular system, and having proved that muscle power was recoverable in old cases of paralysis, he was impressed with the urgent necessity of beginning this line of treatment as early as possible in recent cases.

Draper makes another point when he says—"It is curious that notwithstanding the gradual realisation, resulting from many severe epidemics, that the malady was of an infectious nature, clinicians and the public have been loth to give up the fixed conception that paralysis is the beginning and end of the story."

The term "infantile paralysis" is doubly a misnomer, as it leads us to consider the disease as one of infancy only, and secondly to consider the paralysis as an essential part of the disease; it has recently been pointed out that non-paralysed cases comprise 50 per cent. of patients affected, and some observers put the numbers as high as 70 per cent.

From the practitioner's standpoint, however, we must consider

paralysis as the diagnostic, all-important and engrossing feature of the case; in the natural course of the malady his efforts in the paralytic type of case have been palliative rather than curative, and he is suddenly called upon to treat a child who has recovered from its fever, but who has developed a severe paralysis.

One of our first considerations which may be overlooked is that we are dealing with a notifiable disease. Since 1912 notification has been compulsory. The classical cases reported by W. Pasteur in this country in 1897, when he recorded the infection of seven members in one family, should bring home to every physician's mind the grave obligation of recognising poliomyelitis as being definitely infectious and contagious. The period of infectivity is stated to be about four weeks.

Our next consideration is the acute stage, or, as some writers describe it, the period of prodromal symptoms before the appearance of paralysis. If, however, we consider the paralysis as a complication or sequela of the disease, and recognise that the majority of cases have only transient muscle weakness or none at all, then the acute stage of fever, restlessness, hyperæsthesia, pain on movement, stiff neck, etc., marks the disease itself. It may be argued that in many cases paralysis is the first and only indication of anything being wrong with the child. Investigations on this disease during large epidemics in Sweden and America have demonstrated that it is only a comparatively small number of cases in which the acute stage with paralysis really seems to be the first outward manifestation of the disease.

Peabody, Draper and Dochez in the monograph issued by the Rockefeller Institute state that in their opinion the prodromal, or, as I prefer to call it, the acute febrile period, has in the light of our present knowledge of the epidemiology and of our hopes for a therapeutic control of the disease assumed an unexpected prominence. It is during this period that we must isolate and quarantine; this is therefore the most important stage of the disease from the point of view of the community, for on its recognition depends the possibility of controlling the infection, and it is only in this period before an extensive destruction of nerve-cells takes place that one can ever hope to make treatment thoroughly efficient.

However skilled our treatment of the paralyses may be, prevention is better than cure, and if the disease could only be recognised sufficiently early and specific curative treatment given the paralyses might become a comparatively rare complication.

How early can a diagnosis be made, and what specific treatment

is to be given? These are the problems which I feel certain will be solved in this as in other diseases. Skilled laboratory assistance is essential, and the lines indicated are lumbar puncture for diagnosis and serum therapy for treatment.

Anterior poliomyelitis is a disease which confers a definite immunity on the recovered victim, and herein lies a germ of hope.

If there be no local or general epidemic, the sporadic case, occurring as it frequently does away from the large centres of population, will always, I fear, be a surprise to us, and the diagnosis in the acute stage and even in the early paralytic may be a matter of grave difficulty. Once diagnosed, however, the seriousness of the problem should be apparent, and a recognition of the fact that we are now dealing with an acute inflammatory process of an infective nature attacking the central nervous system over an extensive area; and exhibiting a specially marked predilection for the lumbar and cervical enlargements of the spinal cord should enable us to formulate a satisfactory plan of treatment.

Early diagnosis in this disease is imperative, and is an essential part of treatment.

To simplify a little our conception of the course of the disease we may consider it with an artificial demarcation into three stages:

(1) The pre-paralytic or acute febrile stage.

(2) The paralytic stage.

(3) The post-paralytic or stage of residual paralyses with or without deformities.

It may be here remarked that the old cases of infantile paralysis become such definite surgical conditions that it is a little difficult to regard the disease itself as a purely medical entity, and to consider the sequelæ which may later require surgical interference not as inevitable consequences of the disease itself, but mainly as the results either of inefficient medical treatment or of parental neglect.

The physician in charge of a case of infantile paralysis during the paralytic stage requires a very sound knowledge of what we might call medical orthopædics, the understanding of the application of splints and retentive apparatus, and of the prevention of deformities. The late Dr. F. E. Batten was pre-eminently a physician of this character.

Except for occasional simple tenotomies it is considered that surgical operative procedures should not be undertaken during the first two years after the onset, during which period it is recognised that spontaneous recovery is possible and may be greatly assisted by anatomical rest and muscle re-education.

In spite of this apparent lack of the necessity for surgical intervention the pitfalls are many, and the physician will be wise to avail himself of his orthopædic surgical colleague's advice and assistance regarding the prevention of deformities, lest he lay himself open afterwards to grave reproach for neglect of definite principles of treatment.

It should be impossible to see cases of upper limb paralysis allowed to remain without support on some form of abduction arm splint; and that foot-drop should occur so frequently implies an ignorance of modern methods of treatment. We regard the non-recognition of a fractured bone and its immediate correct treatment as something more than a mere error of judgment, and the same criticism should apply with regard to the treatment of paralysed muscles: they must be appropriately splinted and rested as soon as recognised. Occasional deformities may occur in spite of every care, but they will be rare.

In the pre-paralytic stage Batten advised lumbar puncture not only as a method of diagnosis but also as a means of treatment; he also mentioned the use of human immune serum but only instanced two cases. This method of treatment, which gives hope for some therapeutic control of the disease, has been somewhat extensively used experimentally both in America and on the Continent. It is based on the experiments and observations of Flexner and Lewis, who showed that intra-spinal injection of serum derived from human beings or monkeys recovered from this disease would prevent paralysis in monkeys after intra-cerebral injections of virus. Netter applied these observations to the treatment of human cases. More recent work by Flexner and Amoss suggests a combined intra-spinal and intra-venous or subcutaneous route for the injection of the serum. Nearly 9000 cases of infantile paralysis were reported in the severe epidemic in New York in 1916, and the results of serum treatment would still appear to be very open to question as to its efficiency.

Isolation, and disinfection of discharges, with cleansing of the nose and throat with some neutral or mild antiseptic lotion, are procedures to be strongly advised.

In all grades of this affection the maximum degree of rest and quiet is indicated. We are dealing with an acute inflammatory condition of the central nervous system, and movement of limbs means irritation of the whole delicate and inflamed neuro-muscular mechanism. As Mackenzie puts it: "Since rest is the basic treatment of inflammation, only by the zero or anatomical position can the door be closed on all sources of irritation, and cord, nerve,

receptive substance and muscle be placed at physiological rest; that is, only through the zero position can you offer the greatest physiological opposition to the sources of inflammation."

Complete rest may be preferably obtained on a frame, a double Thomas hip splint or other bed splint, and should continue as long as any fever, pain and tenderness persist. The condition should be treated as seriously as one would a gangrenous appendix, and in this way further damage may perhaps be prevented.

For any affection of the lower limbs complete rest in this way is best continued for about six weeks, to avoid if possible pelvic tilting and any undue external rotation of the thigh.

This careful support of the limbs and rest in bed will often relieve the painful symptoms, but in certain cases aspirin or even morphia may be necessary. Purgatives and antipyretics are to be given as required.

We now deal with the question of the treatment of the paralyses, and here it is absolutely necessary to approach our problem in an optimistic frame of mind, recognising that the disease is undoubtedly one which tends to recover, but which also requires skilled supervision, to avoid grave neglect on the one hand or meddlesome interference on the other, in order to enable this recovery to reach its highest point.

Our optimism, which is the only thing which is going to carry us through the long dreary months of uphill work, must necessarily be sane, and there is no reason to give any but the most guarded prognosis to the parents. "Wait and see" is here quite a legitimate motto.

If we adopt the above-mentioned generally cheerful attitude, if the diagnosis is made early, if treatment is as immediate as possible, and carried out on the lines to be indicated, then we have substituted for a not uncommon attitude of "nothing can be done for your child" one of action and comparative hopefulness.

A very pertinent question might naturally arise here as to the resonable basis for anyone adopting a hopeful attitude in this disease, remembering the mortality in severe cases, and the wretched cripples one sees in out-patient hospital work. Our only firm ground can be pathology and clinical experience.

Batten states that in the grey matter in the acute stage of the disease when the infiltration has not been too extensive the large cells of the anterior horn can be seen; some of them present a normal appearance, some are surrounded by infiltration cells, and others again are being destroyed by phagocytic neuroglia cells.

Draper's statement is important in this connection: "Particularly interesting are the observations that uninjured ganglion cells may be found side by side with other ganglion cells exhibiting extreme injury."

It is not unreasonable to assume that in this instance as in others in the body Nature has been lavish in her structural gifts to man, and that in her arrangements for the control of muscular movements each muscle or muscle group has in connection with it more anterior cornual cells than are essential for the obtaining of movement.

It is conceivable that we may lose many of our anterior cornual cells during the acute inflammatory process of poliomyelitis and yet retain or regain sufficient to carry on muscular function in the limb at practically the same level as before. Personally I prefer this explanation of undamaged nerve-cells or of recovered nerve-cells functioning to their full extent to that of Lovett, who thinks "that impulses might often be sent from the brain around the destroyed centres by new paths." The extent of the damage will of course vary with each individual case, but as we can never tell the extent of the permanent damage and of the residual paralysis, it is advisable to approach the treatment of each case with confidence, no effort being spared to obtain voluntary movement, when the amount of improvement obtainable will be a constant source of surprise and encouragement.

The conception of the neuro-muscular system as being an interdependent whole and the possibility of nerve-cell atrophy being prevented by muscle movement would help to explain the necessity for rest plus early muscle re-education as distinct from a policy of rest and relaxation of muscle alone.

Mackenzie says: "I ascertained that through the muscle treatment could be directed towards the restoration of function of what I regarded as the partially damaged anterior horn-cell, or towards the bringing of new nerve-control factors into play, remembering always cell adaptability and the precedence in biology of structure over function."

From the clinical point of view both Lovett and Mackenzie hold very strong views as to the possibility of recovery of function.

The former states that complete functional recovery occurs much oftener than was formerly supposed, also that most untreated cases or badly treated cases are capable of marked or great improvement by treatment. Mackenzie, whose clinical experience of this disease is extensive and who was one of the earliest to advocate that

treatment should be based on the idea of the disease being recoverable, reports ten upper limb cases seen in the first week with nine functional recoveries.

To achieve these good results diagnosis and treatment must both be as early as possible, and the outstanding lines of treatment are complete anatomical rest and muscle re-education.

The treatment for any paralysed muscle is immediate rest; but that alone is not sufficent—it must not only be immediate but also anatomical. It must be immediate; it admits of no delay because the disease at once destroys muscle adjustments, and so fine are these that immediately the nerve-cell governing the action of a flexor, for example, is affected its extensor opponent begins to overact, and this must be prevented for three reasons:

(1) It does not allow complete rest of the affected anterior horn-cell, being a constant source of irritation.

(2) By overstretching the affected muscle it interferes with its recovery.

(3) Even though the nerve-cell and affected muscle may recover their power, deformity is inevitably produced.

No definite time can be stated as to when muscle re-education should be begun, but the guides will be pyrexia, pain and tenderness; until the cessation of these the limbs are best kept at rest as advised and rested only.

The great underlying principle is to pick up a minimum function and to use it as the commencement. There is a zero position of muscle function for every muscle or muscle group; re-education must be commenced in this position, and carried on patiently and skilfully during the next two years at least.

It is impossible to say when improvement is no longer obtainable, Lovett reports a case of twenty-five years' standing, Mackenzie one of eleven years, and I have seen marked improvement in a left upper limb with a nine years' history.

Thymus gland has been advised in doses of 5 gr. three times a day, but it is difficult to be sure of the resulting benefit obtained by its administration.

Massage and electrictiy, the sheet-anchors of former methods of treatment, are considered by modern authorities to be not only useless but harmful in the early stages of this disease, and after that should be used with discretion to strengthen recovering muscle function, with re-education, as always, the prime curative factor. Warmth for the limbs under all circumstances is a necessity of treatment.

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A CASE OF LEUKÆMIA WITH SCALP NODULES.*

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It is with the hope of helping towards a solution of the obscurities which surround the so-called "Primary" blood diseases in general and those of children in particular that this case is recorded. It is of special interest in that it had been under observation for over eight months with fairly regular blood-counts and was at first looked upon as an aplastic anæmia, and subsequently, owing to the quick recovery under treatment, was renamed "secondary anæmia of unknown cause," but finally turned out to be leukæmia, probably of the myeloid variety, with the simultaneous development of nodules mainly of the scalp. Of further interest are certain anomalies in the blood picture, the occurrence of an infectious fever (measles) followed by a change in the blood picture, and the post-mortem findings. These will be subsequently referred to.

The clinical history is as follows: The patient, a boy, aged 3 years and 4 months, was admitted to the East London Hospital for Children, Shadwell, under Dr. Clive Riviere on March the 14th, 1919. The symptoms on admission were those of any severe anæmia, namely disturbed sleep, irritability, pica, anorexia, headache and a troublesome cough.

Family History.—Patient was one of two children; the other child as well as the parents were healthy.

Previous History.—No infectious fevers.

History of present illness.—In December, 1918, the child was

* The case was reported to the Section for the Study of Diseases in Children of the Royal Society of Medicine on October the 24th, 1919.

treated as an in-patient in a hospital for three weeks for "bronchial catarrh" and was reported to have been pale and slightly jaundiced at the time.

On admission, March the 14th, 1919, we found the boy extremely pallid, of a lemon-yellow tint but not jaundiced, fairly plump, and with a lethargic appearance and no purpuric manifestations. The gums and teeth were healthy. The tonsils were large but not inflamed. The posterior cervical, axillary, and inguinal glands were just palpable, firm, discrete and freely movable.

The lungs showed nothing abnormal.

The heart was much enlarged, with diffuse pulsation over the præcordium, and dulness extended to one inch outside the left nipple line and to nearly the right nipple line. Systolic and diastolic murmurs were heard all over the præcordium.

Abdomen.—The liver was enlarged, being two inches below the costal margin, but the spleen was not enlarged to percussion or palpation.

Ophthalmoscopic examinations on two occasions gave negative results.

Wassermann and Von Pirquet tests were also negative.

The urine was examined several times and showed on a few occasions, according to the pathologist, "the faintest detectable trace of albumin." A few red cells and few granular casts were seen at times. No ova or parasites were present in the fæces. Cultures from them revealed the *Bacillus coli.*

The first blood examination done on admission gave the following result: Red cells, 760,000; white cells, 8400; hæmoglobin, 11 per cent.; colour index, ·8. Differential count: polymorphs, 9·5 per cent.; lymphocytes (large and small), 85 per cent.; hyalines, 2 per cent.; myelocytes 2 per cent.; 200 cells were counted, no nucleated red cells were seen. There was marked anisocytosis, poikilocytosis and polychromasia.

Progress.

To describe the progress of the case it is necessary to mark out three periods.

(1) From the date of admission, March the 14th, to April the 29th, when the child developed measles and was sent home.

(2) From the date of discharge to August the 7th, when the nodules were first noted.

(3) From August the 7th until death.

To take the first period: The child was extremely pale with a hæmoglobin percentage of 11·1, a red-cell count of 760,000, white cells 8400, polynuclears being 9·5 per cent., lymphocytes 86 per cent., and the myelocytes 2 per cent. Then under treatment there was a marked improvement at the end of five weeks, as shown by the greater interest taken by the child in his surroundings, his improved colour, the hæmoglobin of 61 per cent. and nearly 3,000,000 red cells. The percentages of polymorphs and lymphocytes were now quite reversed, being 62 per cent. and 21 per cent. respectively, instead of 9½ per cent. and 86 per cent. Nucleated cells appeared and poikilocytosis became less and less marked. The cardiac dulness became much diminished; both systolic and diastolic murmurs were now absent.

Treatment during this time consisted of intramuscular injections of soamin 1 gr. and ferri et amon. cit. 2 gr. on alternate days. Twelve injections were given in all. Red marrow and arsenic and iron were administered by the mouth.

Now to take the second period, during which the child was out of hospital until the discovery of nodules on August the 7th. I must add here that I had been examining the child for nodules at each of his frequent and regular visits. Judging by my notes the nodules must have appeared some time after July the 4th, and this period I missed as the child was away at the seaside. A synopsis of the blood-counts made at this time shows with considerable regularity 4,000,000 red cells, 60 per cent. hæmoglobin and an average of 13,000 leucocytes. The differential counts were normal for a child of this age, with the exception of a polynuclear increase at the expense of the lymphocytes on one occasion. It is noteworthy that no myelocytes nor myeloblasts were found during this second period.

Now, to come to the third period, dating from the first detection of the nodules on August the 7th. There were eleven nodules of varying size on the scalp, the largest being about ½ in. in diameter. They were harder and paler than the rest of the skin and, as a skiagram showed, not attached to the bone or periosteum. The left palpebral fissure was wider than the right, this being due to what was apparently a nodule in connection with the periosteum at the left infra-orbital margin. The superficial glands, which had never been more than just definitely palpable, were now recognisably enlarged, discrete and freely movable. No abnormal cells were seen in the blood at this stage.

On September the 6th the nodules in the scalp, eighteen in number, and the one over the infra-orbital margin were larger still, and two

cutaneous nodules appeared in the right posterior iliac region and the right thigh in front. The glands were enlarged as before, and both testicles were now found to be equally enlarged and of almost stony consistence without any tenderness. It was on this date, September the 6th, that myeloblasts to the extent of 20 per cent. first appeared in the blood picture with a hæmoglobin percentage of 72, $5\frac{1}{2}$ million red cells, and a leucocyte count of 13,000. No poikilocytosis nor nucleated red cells were present.

Immediately after admission no treatment was given for three weeks, with the result that, although the nodules became decidedly smaller and the testicles regained their normal size and consistency, the hæmoglobin content of the blood depreciated from 72 per cent. to 44 per cent. and there was a drop of about half a million red cells; these changes were evidenced clinically by progressively increasing pallor. Now comes an important series of events:

On September the 23rd the highest recorded leucocyte count was obtained, namely 69,000. On the 24th treatment was commenced, which consisted of an injection of soamin and iron citrate; on the 25th the temperature, which had hitherto been normal, registered 101° F., and a swelling appeared in the right axilla and unconnected with the site of injection. This swelling simulated an abscess very closely and was incised without any pus being found. For four weeks subsequent to this the temperature fluctuated between normal and 102° F. This, with the exception of a slight temperature of one week's duration in March, and the last four weeks preceding death, was the only time the child ran a temperature. The blood-count on September the 23rd shows, as I have already stated, 69,000 leucocytes with 86 per cent. myeloblasts. This high leucocyte count of 69,000 dropped within 14 days to 7200.

Judging by the child's general condition on October the 15th he seemed to be taking a turn for the better, and this coincided, as is shown in the chart, Fig. 1, with the return of the polymorphs to 41·5 per cent. on the count of this date. This period, however, was very transitory. The child's condition steadily declined and he died on November the 27th. The following, briefly stated, are the changes noted on the respective dates:

November the 2nd: More nodules on the scalp, increasing pallor, slight puffiness of the knee and ankle joints, lower end of the femur very tender and very slight pyrexia since October the 30th.

November the 8th: Nodules in the scalp larger still and more numerous, spleen just palpable, liver $2\frac{1}{2}$ in. below costal margin.

November the 10th: Many nodules of the forehead, scalp and eye-

brows; cervical and inguinal glands very much larger. Extreme pallor and of a lemon-yellow tint. Abdomen large and full. Diffuse purpuric rash on chest and abdomen, a few lesions scattered over both thighs; swelling, tenderness and œdema of both ankles (lower end of tibiæ).

November the 13th: Skin over the chest and abdomen is now of a mottled cyanotic appearance. No pain, swelling or tenderness of the ankle. Spleen palpable and well below costal margin. Hurried respirations.

November the 26th: Scalp nodules smaller than before and fewer in number. Bleeding from the gums and extreme pallor.

November the 27th: Death.

The clinical history of the case can be summed up as follows: A boy, aged 3 years and 4 months, with an apparently idiopathic severe anæmia of 11 per cent. hæmoglobin and 760,000 red cells, responds, as evidenced by his general condition and blood picture, to treatment in five weeks. Then he contracts measles, and about three months later develops nodules, mainly in the scalp, exhibiting at the same time a different blood picture which is also most unusual, in that he shows a hæmoglobin percentage of 72, red cells of 5½ million, together with what we look upon as myeloblasts. Without treatment some of the nodules disappear and others become smaller, but with a reduction of the red cells and the hæmoglobin content. With the commencement of treatment, *post hoc* or *propter hoc*, the temperature shoots up and a soft tender tumour develops. The treatment is now discontinued for a fortnight, and recommenced owing to the steadily increasing anæmia, but with no evidence of any improvement; eventually, with all the accompaniments of any severe anæmia, death takes place. Of unusual occurrences were the tender hyperæmic swellings in connection with the lower ends of the bones (tibiæ and right femur) which subsided in a few days; the gradual enlargement of the nodules with the decline of the patient's condition, and the disappearance of some of these twenty-four hours before death. The enlargement of the testicles, however, never recurred, nor was there a recurrence of cardiac dilatation or murmur of any sort in spite of the extreme severity of the anæmia.

Blood Picture.

The fluctuations of the total leucocyte counts and of the different cells are shown graphically in Fig. 1. The base line represents the normal (1) for the age. The different blood-counts are also tabulated below.

The chart shows strikingly the increase of the red cells from 760,000 per c.mm. on admission to $5\frac{1}{2}$ million on August the 7th, and

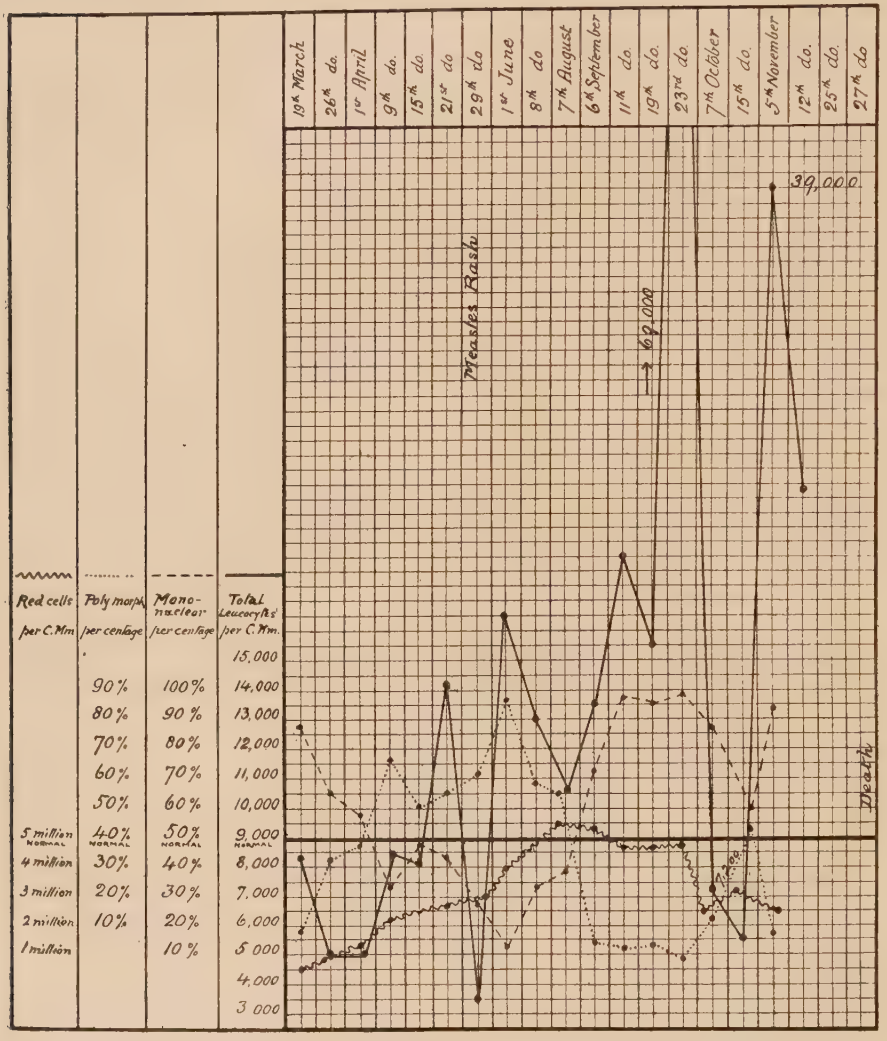

Fig. 1.

then the slow but steady decline. The 88 per cent. mononuclears on admission were mainly (86 per cent.) lymphocytes, while towards the end they were almost wholly the premature type of cell here looked upon as myeloblasts and premyeloblasts. The steady rise of

the polynuclears (neutrophil leucocytes) from 9·5 per cent. on admission to 86·5 per cent. on June the 1st corresponded to a steady fall of the lymphocytes and coincided with a marked steady improvement in the child's general condition. With the increase of the mononuclears (now myeloblasts) from August the 7th and the

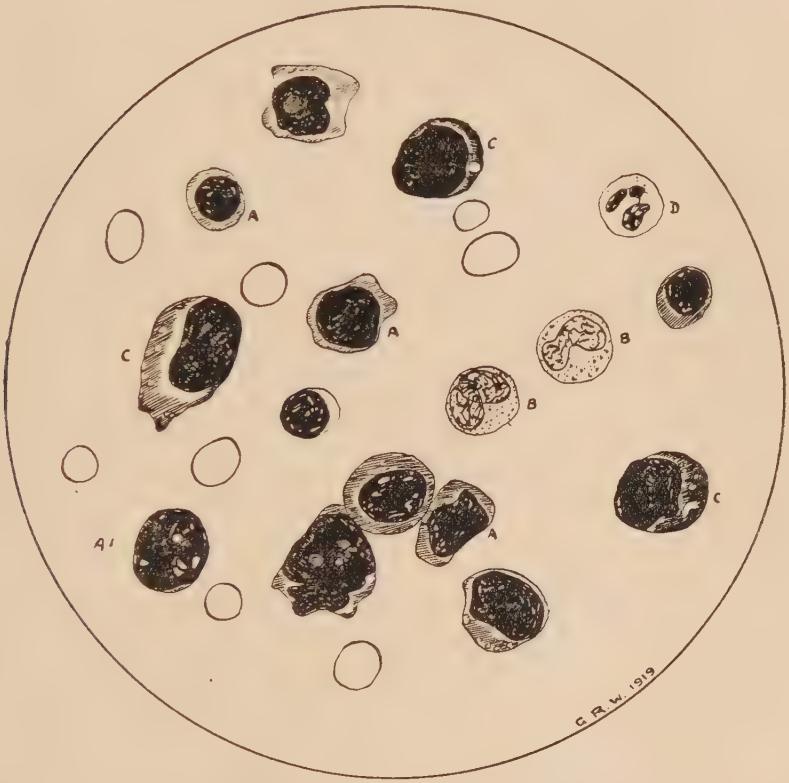

Fig. 2.—A. The most frequent type of cell, with deeply staining nucleus, occasionally one or more nucleoli and homogeneous cytoplasm, taking the basic stain to a moderate extent. A¹. Same kind of cell with less protoplasm, and larger nucleus. B. Cells with reniform or convoluted nucleoli, with an open chromatin network and no nucleolus. Cytoplasm containing amphophil granules. C. Cells of the type of Turk's irritation forms, with deeply staining and often vacuolated cytoplasm. D. A polymorph leucocyte. Stained with Geimsa. Note also the variation in size of the red cells.

steady fall of the polynuclears the child's condition seemed to change for the worse. The curve for the total leucocytes shows anything like a leucocytosis (69,000) only on one occasion (September the 23rd) and this within a fortnight dropped to 7200 per c.mm. Incidently

this curve also shows a leucopenia (3400), which is stated to be a frequent accompaniment of the rash of measles—April the 29th.

The type of cell present is shown in the camera lucida drawing, Fig. 2, for which I am indebted to Dr. Gordon Ward. The myeloblasts, c, are recognised on their morphology. As further confirmation the oxydase reaction was done by Von Gierke's method. Some of the cells gave the reaction and those that did not are looked upon as premyeloblasts.

Post-mortem Examination.

This was done twelve hours after death. The body was fairly well nourished with diffuse subcutaneous hæmorrhages over the trunk and the upper half of the inner side of the thighs. Numerous nodules of varying sizes on the scalp, but no discoloration.

Pleura.—Small punctate hæmorrhages in the visceral and parietal pleura, particularly on the diaphragmatic portion and over the posterior part of the lungs. No effusion into the pleural cavities.

Heart.—Macroscopic examination. No blood-clot in the heart cavities. There was extensive hæmorrhage in the right auricular wall. Cardiac muscle was of a uniform pallor. Microscopic examination: slight fatty infiltration, and well-staining muscle fibres.

Pericardium.—No increase of pericardial fluid. There were punctate hæmorrhages in both visceral and parietal pericardium, but more diffuse in the former.

Thymus.—Not enlarged; sections showed no definite hyperactivity, the cellular content being about normal.

Thyroid.—Not enlarged; the vesicles were half full of colloid material.

Peritoneal cavity.—No effusion. The great omentum was loaded with fat, and in the lesser omentum were minute lymphatic glands dark red in colour. There were also punctate hæmorrhages.

Spleen.—Occupied a portion well under the diaphragm. It was somewhat enlarged and weighed four ounces. Its consistency was firm and on section it was dark red in colour with many pinkish areas in its substance. Microscopically the areas consisted of cells taking the stain poorly. Large mononuclear cells resembling those seen in the blood and bone-marrow were present in large numbers. Only a very few Malpighian corpuscles were to be seen, and these were much smaller than normal. There was no proliferation of the fibrous tissue.

Liver.—Weight 1½ lbs. On section the colour was pale, smooth

and oily. Microscopically there was a mononuclear infiltration of the portal tracts, and a moderate degree of fatty degeneration.

Pancreas.—Normal.

Kidney.—No myeloid tissue at the hila, but a good amount of of perinephritic fat. Right and left kidneys weighed 3½ and 4 ounces respectively. On section the cortex and medulla presented the same pale colour with no demarcation. Microscopically there is a cellular infiltration limited mainly to the connective tissue around the vessels. Lying free in the blood-vessels were cells of a similar nature. There was also marked cloudy swelling.

Suprarenals.—Normal.

Intestines.—Showed prominent Peyer's patches and solitary follicles. These microscopically showed the same mononuclear cell infiltration.

Scalp nodule.—On section there was no discoloration but it was paler than the rest of the scalp. The section included the skin, superficial fascia and muscle together with the scalp around considered normal. Microscopically this showed closely packed aggregations of large mononuclear cells, some of which contained oxyphil granules. This cellular infiltration was limited to the muscle layer, and no infiltration of the superficial fascia nor the periosteum. The portion of the scalp thought to be normal also showed a moderate degree of cellular hyperactivity.

Brain.—Macroscopically normal.

Dura mater.—Firmly thickened and adherent to the skull in eight places with the consequent destruction of the normal smoothness of the inner table.

Bones.—The marrow was of a thick, homogeneous yellowish pink colour (like pus mixed with a little blood). There was some thickening of the periosteum at the lower ends of the right femur and both tibiæ. Films made from the marrow showed *only two* kinds of cells, namely the normal red cell and the premature type of cell (here looked upon as the premyeloblast) in the proportion of 3 : 97. There were no erythroblasts.

Glands from various parts of the body were examined and found to be enlarged. The cervical glands microscopically showed hæmorrhage into their substance but no cellular hyperactivity. The other glands, however, showed varying degrees of hyperactivity, particularly so in the mesenteric glands.

Clinical Discussion.

Let us now consider the points on which the diagnosis of myeloid leukæmia is based, what bearings the post-mortem findings have,

and what causes could be attributed for this so-called "Primary" blood disease (leukæmia).

The diagnosis of leukæmia is almost entirely based on the presence of abnormal cells in the blood practically replacing all the other cells. The actual number of the cells is not of much help in this case as it was only on one occasion that anything like a leucocytosis was seen. It is quite possible that the blood would have shown a true leucocytosis, as is commonly seen in leukæmia, had the blood examinations been more frequent in the final stages. Owing to the presence of nodules the case comes under that clinical group of cases of "Nodular Leukæmia" (2), a term suggested by Dr. Gordon Ward. To attempt to differentiate which variety, whether myeloid or lymphatic, is to enter upon controversial grounds. Suffice it to say that this case is being looked upon as being of the myeloid variety because of: (1) the extreme rarity of lymphatic leukæmia or lymphæmia in childhood; (2) the presence of morphological myeloblasts in large numbers; (3) the presence of apparently the same premature type of cell to the extent of nearly 100 per cent. in the bone-marrow, and to a lesser extent in the spleen. I must admit that, considering the chronic nature of the case, the persistent absence of myelocytes is difficult to explain.

Does this case throw any light as to the cause of leukæmia? There are two possible causes: (1) the vigorous treatment with iron and arsenic during the first five weeks; (2) the toxin of measles.

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PRE-LEUKÆMIA IN INFANCY.

By Gordon Ward, M.D.

I am indebted to Prof. Carlo Martelli, of the Royal University of Naples, for a reprint of his latest article (6) on diseases of children, but one may legitimately object to the fact that Italian publishers as well as our own so frequently omit from reprints a proper reference to the original journal in which the work appeared. I therefore venture to preface a short review by a plea to editors that they will bear more in mind that although those who read foreign literature may be comparatively few in number, it is well worth while facili-

tating international co-operation in the sphere of medicine. One simple way of doing this is to publish reprints of original work so that exact references can easily be made and given.

Prof. Martelli deals with a section of that large class of cases sometimes denominated Von Jaksch's disease, sometimes leukanæmia or pseudo-leukæmia or secondary leukæmia, and he puts forth certain original views on those cases which occur in infancy.

The clinical aspect of these cases comprises two chief features, which are anæmia and splenomegaly. It is well known to physicians that in the presence of this symptom-complex further physical examination is often productive of very little additional information.

But examination of the blood is often of great assistance. It may show an anæmia with low colour-index and a paucity of white cells; the case is then referred to the "splenic anæmia" group. Even in this country there are quite sufficient subdivisions of the group to render more exact diagnosis difficult, but in Italy there are two further diseases with which we are little troubled, viz. malaria and infantile kala-azar. More technical examination of the blood may reveal syphilis or acholuric jaundice. On the other hand the blood may show what may be described without misunderstanding as a myeloid blood picture. Probably the leucocytes are somewhat increased, and include a small proportion of myelocytes and of anomalous cells which the routine hæmatologist will class as pre-myelocytes, Turk's cells, plasma-cells or large mononuclears according to his bent. Then the colour-index is possibly above unity and certainly not distinctly low while nucleated red cells will be found now and again. Prof. Martelli does not distinguish for his purposes between this picture and the more definitely leukæmic condition in which a high percentage of abnormal cells is combined with a relatively low total count. The case recently reported by Gunewardene (3) would be a quite typical example of pre-leukæmia, if attention were concentrated on the blood condition in the early stages. But so also would be the classical cases of Von Jaksch (5), *e. g.* that recorded in 1889, and similar cases recorded since.

There is general agreement that we do meet with in infancy a certain number of cases reminiscent of leukæmia but not quite conforming to type, and rendered more obviously exceptional by the fact that acute leukæmia in infancy is so often a terrible and fulminating process.

For the moment we will put aside such cases as have been described by Ross (9), *i.e.* cases which differ from leukæmia only in the absence of increase in the number of leucocytes and concentrate on that form

which is called "splenic anæmia of infancy or Von Jaksch's pseudo-leukæmia"—a term which only becomes legitimate in advanced cases.

There are two very definite points of view here. Hutchison (4) in his Goulstonian lectures—and we have not advanced far since—says: "At the upper end of the scale we find severe cases which stand, as far as the blood picture is concerned, very close to myelogenous leukæmia, though never, I believe, really merging into that disease." On the other hand, we have Martelli urging that all these cases are potentially leukæmic, and if the disease is not checked may die of leukæmia. He calls preleukæmia an "agonal state," merely a prelude to the victory of true leukæmia—the last effort of the organism at resistance. Clive Riviere (8), writing in 1903, the year before Hutchison's lectures, sums up as follows: "Leukæmia of infants is not a separate disease but merely a still more advanced stage of this anæmia (*i. e.* Von Jaksch's)—that is, the difference between them is one of degree and not of kind." Thus Martelli seems to support an early and authoritative English view. Tixier (11), one of the leading French authorities on anæmias, published in 1912 a monograph on this subject which lies before me. But he is unable to come to a definite conclusion, except that the criteria of Von Jaksch's disease cannot be considered absolute, but merge by all transitional shades into the other severe types of blood disease in infancy.

The point at issue should be relatively easy to settle. Has anyone ever seen a case which was at one stage quite definitely acceptable as an example of Von Jaksch's syndrome progress to another stage in which it was equally definitely leukæmia? Graham Forbes (2) has published the sequence but he required five cases to give an example of each stage. More than this is wanted: the sequence should be watched and reported in a single case. Hugh Ashby (1) concerned himself with the gradation from simple rachitic anæmias to the Von Jaksch's type. Morse (7) gives many cases but none of assistance here, and Stillman (10), another American author, published a study of Von Jaksch's disease which is marred by the fact that his first case was a girl, aged 9 years, who seems to me to have suffered from quite another condition. It is therefore to be hoped that someone will take up the study of this condition with a view to determining whether Von Jaksch's syndrome does indeed merge into leukæmia or not. If it does we shall have a curable condition merging directly into one at present incurable, and there will be much room for a further study of what factors make the difference.

This brings us to Prof. Martelli's second point, viz. that his preleukæmic condition arises from the effect of one of several

possible factors acting on an inherently defective organism. He states that the organism is always defective, inasmuch as the condition affects those of the lymphatic or thymo-lymphatic constitution. These terms are much in dispute, but those who have to do with sick children will realise what is in the professor's mind.

On this ground, he says, either syphilis or tuberculosis, sepsis or malaria may produce the preleukæmic state. In other words the ætiological factors are many. So also thinks Clive Riviere, and there is a somewhat general consensus of opinion on this point. The alternative is that Von Jaksch's syndrome is a separate entity with an ætiology and pathology of its own. This view is rather apt to be taken by those whose hæmatology has a teutonic bent, and is rather an inference from what is regarded as a constant blood picture than a fact capable of proof by itself. My own position (12) is somewhere between the two. I believe that intestinal sepsis is the determining factor but I am not prepared to say that any one intestinal organism is responsible. I also think that the element of rickets has far more importance than that of the lymphatic temperament, with which it is allied, if at all, as an equal effect of the same primary cause. However, the purpose of this review is rather to expound the views of Prof. Martelli and their relation to other views than to expound my own, which are always open to revision in the light of further information.

Perhaps the pædiatrist who shall see pre-leukæmia merge into undoubted leukæmia will also be fortunate enough to see some case merge into health on the removal of an obviously single ætiological factor, and will let the medical world have his observations thereon.

Meanwhile I would erect a target with the following words: "The unknown cause of leukæmia in the adult never produces anything but leukæmia in a child, and the cause of Von Jaksch's syndrome or of this type of Martelli's pre-leukæmia in a child will never produce the adult form of leukæmia even in an adult."

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CARDIAC ANGINA IN A CHILD OF SIX YEARS.

By W. J. Rutherfurd, M.C., M.D.Glas., late Captain R.A.M.C.

In childhood the occurrence of true angina pectoris is most exceptional. Heberden, to whom we owe the first clear description of the condition, met with a case in a child aged 12 years; Dreschfeld has recorded a fatal case occurring in a boy of the same age; Morison (12) never encountered it in children under twelve to fourteen years of age. Anstie (2) recorded a fatal case of angina pectoris in a boy with aortic stenosis, in whom the attack was induced by acute cardiac strain while running. Feytaud (4) describes recurrent anginal attacks, sometimes ending in death, as occurring in aortic aneurysm due to rheumatic fever—a condition the age-incidence of which is from ten to sixteen years. Mr. Hastings Gilford, of Reading (5), in one of his interesting studies of giant and dwarf conditions, mentions the case of a prematurely senile dwarf who died of angina pectoris at the age of eighteen years, and was found post mortem to have heart and aorta extensively calcified. Generally, however, as in the latter instance, it is a malady of the periods of involution, and as such attacks persons who are past the prime of life.

Some years ago I was called upon to attend a boy, aged 6 years, who was found to be suffering from dry pericarditis. It appeared that he had just returned home from a summer holiday at the sea-coast where he had been taken ill, and he had been ill altogether for a fortnight. Previous to this illness he had never had any rheumatic or choreic manifestations, and examination failed to reveal muscular twitchings or unsteadiness, emotional disturbance, joint pains or swellings, nodules, or muscular tenderness.

He was a bright, intelligent child, but was unduly pale and emaciated; the temperature was 100·4° F., and his pulse-rate 112 per minute. The cardiac dulness was not increased, but accompanying the heart-sounds there was a continuous to-and-fro friction-rub particularly noticeable along the right cardiac border. Since the beginning of the illness he had had numerous anginoid attacks, one indeed having occurred on the day he came under observation, and these were usually accompanied by a feeling of chilliness. The pain, though it was described as occurring most often in the upper abdomen, was not infrequently referred to the outer aspect of the left upper arm at a point at or near the insertion of the deltoid—a part the child would apprehensively catch hold of and nurse during the continuance of the pain. These paroxysms were fairly intense,

as they made him cry, and exhausted him so much that he usually fell asleep whenever one had passed off. During the course of the treatment there was no further recurrence of these attacks, the pain in the arm caused by which had been a source of considerable puzzle to his mother. Whether a favourable development of the case was the cause of this, or whether it was due to energetic steps taken to combat intestinal autotoxæmia, which seemed present, it is difficult to say.

This associated pericarditis was, however, undoubtedly the cause of the angina whether the constipation had helped to promote its recurrence or not. Hood (7) has recorded a similar co-existence of pericarditis and angina pectoris, but in the reverse order to their occurrence in this case. Powell (14) has given his experience that in the course of pericarditis anginoid attacks are sometimes, though rarely, met with, their gravity depending upon that of the cardiac lesion ; while that pain of any sort in pericarditis seems to be generally absent in the case of young children is stated by Roberts (15), who further states that "in exceptional cases pain of an anginal character, shooting up the left side of the neck, to the ear, to the shoulder, or down the arm, is associated with acute pericarditis ; but endocarditis has almost always been present at the same time, and generally chronic valvular disease also." It may thus be safely concluded that the concurrence of unmistakable dry pericarditis, anginoid attacks of such definite nature, a negative story as to rheumatism and chorea, and finally, an age-incidence of six years, must be almost unique.

It is of interest also to bring together a number of instances of what for want of a better term may be called the occasional tendency to various other sorts of early degenerative change that have been met with in a search of the literature while preparing this paper. A case of obliterative arteritis has been recorded (9) in a child aged 9 years, and Burn Murdoch (13) has recorded an instance of aortic aneurysm in a child. Aneurysm in the young is referred to by McGraw (11) and by Lewis and Schrager (10). Dr. A. Jacobi (8) has recorded a case of aneurysm of the descending aorta in a girl, aged 5 years. Sanné (16) has reported four cases of extraordinary precocity—one in a fœtus, and the others in children aged 2, 10 and 13 years respectively.

Aitken (1) records the case of a boy dying of endocarditis and pericarditis, who was found to have an atheromatous aortic arch and an aneurysm at the bifurcation of the abdominal aorta. Conway (3) gives the case of a primipara, aged 22 years, where delivery was

complicated by a calcareous fibroid of the ovary. Gray (6) claims that calcareous infiltration of the tympanic membrane may occur even at the early age of twelve years, while Politzer states that he has come across cases of otosclerosis in persons between the ages of ten and fifteen. It is thus abundantly evident that cardio-vascular and other degeneracies may occur sporadically as a rare event, extraordinarily outside their usual age-incidence.

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See also a paper by E. Bronson and G. A. Sutherland on "Ruptured Aortic Aneurysms in Childhood, with Report of a Case," in the British Journal of Children's Diseases, 1918, xv, p. 241.—Ed.

SOME CLINICAL FEATURES OF TYPHUS FEVER IN CHILDREN.*

By A. Stroë.

Typhus fever in children is generally a mild disease. In the great majority of cases its course differs remarkably from that of typhus in the adult; the duration of the fever is shorter, being seven, ten or twelve days, and only rarely fifteen days. It is not until the age of seven years that typhus assumes the characters of the disease in the adult in a mild form. The temperature rises rapidly, and remains between 100·4° and 102·2° F. for a few days, and defervescence occurs by rapid lysis. The pulse ranges from 80 to 140. I have seldom observed arrhythmia.

* A paper read before the Société médicale des Hôpitaux de Bucarest on June the 31st, 1919.

The character of the eruption varies. It is absent in 25 per cent.; in other cases it is very transient, and merely consists of a few lenticular spots, which disappear in twenty-four to forty-eight hours. In some cases, however, especially in children over seven years of age, the exanthem presents the same characters as typhus in the adult. In very young children I have sometimes observed a rash consisting of minute petechial spots, like those of purpura. A very constant sign in children is injection of the conjunctivæ, which is quite as characteristic as in the adult.

Signs of profound intoxication are extremely rare. I have never seen forms with bulbar phenomena. The dyspnœa never shows the same degree of intensity as in the adult.

Bronchitic *râles* are often found, but areas of congestion are exceptional in children. The liver is congested, and sometimes tender on palpation; the spleen is always enlarged on percussion, and in half the cases it was palpable. Albuminuria is present, but casts are rare. The cerebro-spinal fluid does not always show the reactions described in the adult by Daniélopolu. In several cases we found some lymphocytes and red corpuscles; in one case the reaction was very intense.

From what has been said it is clear that the diagnosis of typhus in the child may sometimes present great difficulties. The agglutination reaction with the various methods hitherto described may be of some value in these cases.

(1) This reaction was of great help in one of the cases of this kind, in which I employed cultures of the micro-organism which I described in 1917. (2) In November, 1918, I was able to obtain a culture of the Weil-Felix micro-organism at Bucharest. At that time the work published on the subject was not known in Moldavia. The Weil-Felix reaction yielded positive results in the great majority of 200 typhus patients in whom I tested it. In eleven cases the serum agglutinated the Weil-Felix organism only, and gave no reaction with the organism isolated in Moldavia. In some cases the agglutination was more marked with Weil-Felix than with the latter. (3) I found the agglutination reaction positive with a micro-organism which did not present any characters in common with the organisms hitherto isolated. These investigations will be published in a subsequent communication.

TUBERCULOSIS VERRUCOSA CUTIS OF THE FOOT.

By T. McCririck, M.A., B.Sc., M.D., D.P.H.,
Assistant County M.O.H., Cumberland.

The patient, a boy, aged 12 years, the son of a coal-miner, developed a few "pimples" on the middle of the sole of the left foot, and these gradually, in the course of four years, grew into the present warty growth covering the greater part of the thin skin of

Tuberculosis verrucosa cutis.

the sole and inner side of the foot, avoiding the thick skin of he heel and ball of the toes. Tuberculosis verrucosa cutis has its seat of election on the back of the hand, but occasionally it affects other situations as the face and the leg, and rarely the foot, and hence the interest of the present case.

The greater part of the patch is beset with hard, wart-like growth, the most characteristic area being nearest to the hard skin of the heel, that of the centre of the sole being distinctly smoother and flatter. The greatest height of the growth above the general skin level is 3 mm. On the inner side of the patch are several small isolated nodules surrounded by purplish-blue skin. There is no

purulent or sero-purulent fluid in the interstices of the projecting vegetations, nor is there any ulceration.

The family history is a tuberculous one on the mother's side, and a daughter died three years ago, at the age of nineteen, from multiple tuberculous abscesses, which required dressing for many years. This dressing was done by the mother as a rule, and no doubt was done in a very careless manner judging by the uncleanliness of the house, and the general fecklessness and want of intelligence of the mother. Two other boys and one girl of the family are healthy: two babies died in infancy of "lung trouble."

The apparent mode of infection is interesting. There seems little doubt in this case that the boy has been infected by the discharges from the sores of the sister, who died three years ago, and who was in an active state of tuberculous disease four years ago, when the boy's lesion began. The boy ran about barefoot in the warm summer weather, as is the custom in many parts of the country, and bare feet of course are liable to cuts and scratches, which form suitable points of inoculation for pathogenic organisms. This mode of infection is a common one in ankylostomiasis and in Madura foot. Moreover, the lesion made its appearance in the autumn, and allowing for the incubation period of the tubercle bacillus the time of onset fits in with the other evidence of infection. A striking analogy, also, is afforded by the mode of infection in verruca necrogenica or anatomic tubercle, in which the lesion occurs about the knuckles or other parts of the hand or forearm of dissecting-room attendants from handling tuberculous bodies. Fabry (3), again, has drawn attention to the association of tuberculosis verrucosa cutis and tuberculosis of the lungs in miners, in whom during the course of their work the back of the hand is subject to frequent cuts and scratches, affording points of inoculation for the tubercle bacillus scattered about from the sputum of the patient. It would appear, also, as noted by Béclère (1), that the fact of the dorsum of the hand being the seat of election of the disease especially in men is explained by the habit, which many tuberculous patients have, of using the back of the hand to wipe the moustache.

Local antiseptic treatment with tincture of iodine has effected but slight improvement, and it is hoped soon to put the boy under a course of picric-brass treatment as recommended by Ellis (2).

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ISOLATED DISEASE OF TARSAL SCAPHOID: KÖHLER'S DISEASE.*

By P. Maynard Heath, F.R.C.S.,
Surgeon to the Evelina Hospital for Children.

A boy, aged 7 years, knocked his left foot six months ago. He walked badly after the accident and the foot swelled a little, but it gradually recovered and he made no complaint for three months. The swelling of the foot then began again without pain or redness. When first seen the swelling had decreased, but was still present. It was diffuse over the inner border of the foot and most marked over the scaphoid. No redness or local tenderness were present. There were no other bony lesions. The boy walked with the foot abducted. There was no paralysis, but the calf was a little wasted. The foot was put in plaster-of-Paris in corrected position, and the boy was allowed to walk on it. Recovery ensued in three months.

There is a strong history of tuberculosis on the father's side and the boy looks delicate. The mother states that since the cold weather came on the boy has suffered from "bronchial trouble," and that when his chest was bad his foot swelled again slightly.

The diseased scaphoid shows the following X-ray changes:

(1) Smaller than normal.

(2) Outline irregular.

(3) Architecture impossible to recognise owing to cortex and spongy portion running together.

(4) Density greatly increased.

These agree with the description originally given by Köhler except that in his cases the outline of the bone was regular.

Recent skiagrams taken after an interval of six months show that the bone has returned to normal size; its density is very much decreased, but it is apparently divided into two parts by a cleft.

The boy has now no symptoms.

Three cases of this condition were described by Köhler in 1908; twelve other cases have been recorded, all true to the original type. The condition is always found in boys between the third and ninth years. The onset is as a rule gradual, but may be sudden. There is often an indefinite history of trauma, but in many cases no injury has occurred. Pain and lameness are the first symptoms, accompanied in most cases by swelling and tenderness over the scaphoid.

* The case was shown before the Section for the Study of Disease in Children of the Royal Society of Medicine on October the 24th, 1919.

One case showed local heat and redness. The condition may recover and relapse again, but the ultimate tendency is towards cure irrespective of treatment. Köhler stated that the disease is likely to extend over two to three years. The scaphoid is then said to return to normal.

The X-ray appearances are very characteristic:

(1) Half to a quarter smaller than normal.

(2) Form generally regular, but may be irregular.

(3) The architecture impossible to recognise, cortex and spongy portion running together.

(4) Density increased two- to fourfold.

Pathology.—Various suggestions have been made as to the origin of the condition:

(1) Compression fracture (Stumme), negatived by the absence of trauma, gradual onset, and the rapidity with which it heals.

(2) Tuberculosis: Fassett believes it to be a tuberculous lesion, healed and sclerosed. Most authorities agree that the condition is not tuberculous on account of its clinical course. Hetzel investigated his case carefully and the von Pirquet and Wassermann reactions were negative.

(3) Preiser reported several cases of typical fracture of the carpal scaphoid with the following mechanism: Following slight injury there has been disturbance of surrounding ligaments causing pressure on blood-vessels, with resulting defect in blood-supply to the bone and rarefaction of the latter, with finally compression fracture. He argues that a similar sequence may occur in the foot.

(4) O'Brien thinks the condition is due to delayed development of the ossific centre of the scaphoid, which is stimulated to osteogenesis by trauma, though the agency of pathogenic organisms has not been ruled out. Pain and swelling may be due to post-traumatic osteitis.

I think the most interesting facts in the ætiology are that in one case reported by Köhler a similar process was discovered in the patella of the same side, and that the patient in Rotch's case had a twin brother in whom X rays showed a similar condition in the scaphoid without symptoms. These two cases show that the condition is primarily one of defective ossification of the scaphoid. I am inclined to think that it is not a delayed development as other have stated, but a premature ossification in the scaphoid, which is normally the last bone in the tarsus to ossify, this leading to diminished size and increased density. The small size may lead to

weakness in the attachment of the scaphoid ligaments with subsequent stretching and weakness of the foot. Any strain will then give rise to pain and swelling.

Treatment.—Relief of the strain on the inner border of the foot by an appropriate boot or plaster-of-Paris, and exercise for the calf muscles.

I suggest that we call the condition "isolated abnormality of the tarsal scaphoid." I believe it to be more common than is generally supposed.

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CONGENITAL REDUNDANT EXTERNAL MEATUS; REPEATED ABSCESS-FORMATION; EXCISION.*

By Dan McKenzie, M.D.,

Surgeon, Central London Throat and Ear Hospital.

The subject of this rare deformity is a little boy, aged 7 years.

At birth his doctor noticed a redundant auricle on the *right* side which he attempted to remove. At the age of one year the child developed an abscess behind the *left* auricle, which, apart from its being rather prominent, seemed to be normally formed, and this abscess, which pointed both into the meatus and behind and below the auricle externally, was opened and curetted by Mr. George

* A paper read before the Section of Otology of the Royal Society of Medicine on November the 21st, 1919.

Wilkinson, of Sheffield, to whom I am indebted for these notes dealing with the early history of the case.

From the nature of the contents and the extent of the cavity Mr. Wilkinson suspected that he had to deal with a suppurating dermoid cyst, but nothing further was done at the time, as he considered that the septic condition of the cyst precluded an extensive dissection. Shortly afterwards the parents left Sheffield and he lost sight of the case. At the operation, however, he removed the redundant auricle on the *right* side. Since that time abscesses had formed behind and below the left auricle on two separate occasions, each being opened, and, after a time, closing up again. About a month before I first saw the boy a third recurrence took place, and the abscess was opened for the fourth time in my absence on holiday by Mr. Archer Ryland, who reported that the trouble seemed to be confined to the soft parts, as he could not make out any connection with bone.

When, on August the 20th, 1919, I first saw the patient there was a sinus discharging pus in the lower mastoid region, while another but much smaller opening was present in the posterior-inferior wall of the external meatus close to the conchal margin. The tissues around the lower part of the ear were swollen and infiltrated, and pus could be pressed from a deep situation in front of the mastoid process and below the auricle. Temperature and pulse were normal. The tympanic membrane was also normal and there did not appear to be any deafness.

The likelihood of some dermoid or other congenital malformation occurred to us, and our suspicions were confirmed on hearing from Mr. Wilkinson as above. Accordingly the affected region was exposed by a post-aural incision, and, the auricle being displaced forward and the parts cleaned, what seemed to be an additional external auditory meatus was removed (in two pieces). It consisted of a tubular structure about an inch in length and ending blindly. Cartilage could be felt in its walls, and it was lined with skin. It occupied a position anterior to the mastoid process and immediately below the normal meatus, the bony floor of which seemed to be deficient, but which otherwise seemed to be normal. No difficulty was experienced in effecting the separation of the two canals. The redundant meatus was surrounded, especially towards its outer end, by a collar of thick fibrous tissue, and this part of the tube, together with the tissues around it, was bathed in pus. The opening of the accessory meatus into the external meatus was quite minute, but it was skin-lined and gave us the impression of its being a permanent

fistula. The opening below and behind the auricle led first into a subcutaneous abscess-cavity and through that into the accessory meatus. A substantial cartilaginous nodule lying close to the posterior surface of the normal auricular cartilage was also found and removed. It lay much higher than the redundant meatus and seemed to be quite distinct from it, although it probably corresponds to the auricular cartilage of that meatus. The child rapidly recovered after the removal of the meatus and is now quite well. Its removal, I must add, necessitated the clearing of the fistulous opening into the normal meatus.

The specimen has been examined by Dr. Wyatt Wingrave, who reports: "This specimen shows all the elements of an aural meatus, but distributed most erratically. There are islands of cartilage but not a cartilaginous plate. Glands (sebaceous) and hairs are embedded in a dense mass of fibrous tissue which has evidently formed the greater part of the tube, which is bounded by muscle-fibres. Here and there suppurating tracts or channels can be traced in the fibrous tissue. The lumen contains inflammatory products, *e. g.* leucocytes, epithelial cells and many varieties of bacteria. We have, then, a tube simulating a meatus with suppurating sinuses connected with it. Its eccentric construction may be (1) original, or (2) the result of chronic inflammatory changes subsequent to its formation. There are the materials for a normal meatus, but the construction is imperfect as in other accessory organs."

We may suppose the course of events in this case to be somewhat as follows: The cavity of the redundant, skin-lined meatus filled slowly with secretion like a dermoid. This became infected, probably through the fine fistulous opening into the normal meatus; an abscess formed which discharged partly through the fistulous opening; but, as this was too small for sufficient drainage, also into the soft tissues behind and below the auricle and thence externally.

This particular congenital malformation seems to be rare. I have not been able to trace any more than, at the most, eight cases recorded; in the majority of these the orifice and the external meatus are described as being divided by a septum or partition into two canals, one of which ends blindly while the other leads to the tympanic membrane. In only one case did the original appearances resemble those of the case just described, but the opening lay in the concha, while in one case the accessory meatus opened into the postero-inferior wall of the normal meatus

close to its orifice. Abscess-formation does not seem to have been encountered in any previous case. Cases are recorded by Köhler, Bernard (bilateral), Macauln, Urbantschitsch (with an opening behind the auricle); but these are doubtfully congenital according to Spira, so that the cases in which the congenital nature is clear amount in all only to four. The undoubted cases are Brieger's (1896), Guranowski's (1898), Habermann's and Spira's.

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Royal Society of Medicine.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

Friday, October the 24th, 1919.

The President, Mr. J. P. Lockhart-Mummery, *in the Chair*.

Sequel of the Case of Lipodystrophia progressiva shown on January the 24th, 1919. Dr. Parkes Weber and Mr. T. H. Gunewardene (*vide* British Journal of Children's Diseases 1919, xvi, p. 200).

Case of Lipodystrophia.—Dr. F. Langmead.—The patient was a girl, aged 7 years. She was quite normal in development till Christmas, 1917, when wasting was first observed. About two months later after an attack of measles the wasting became more obvious, and progressed more rapidly. Subsequently she had an attack of acute rheumatism for which she was confined to bed for six weeks. On convalescence the wasting was remarkable and led to her admission to hospital. Examination showed that the wasting was confined to the upper part of the body and ended about the level of the umbilicus. The face and neck were distinctly affected, all the fat seeming to have disappeared. The arms were wasted, but to a less extent, and the thorax and abdomen showed the same condition progressively less in a downward direction. The lower limbs were normal and showed no pseudo-hypertrophy. The disappearance of fat was not accompanied by any loss of power or other symptoms, the child being in good general health.

Enlargement of Cervical Lymphatic Glands in a Case of Congenital Syphilis.—Dr. H. C. Cameron.—The patient, a girl, aged $8\frac{1}{2}$ years, showed clear evidence of congenital syphilis with Hutchinson's teeth, interstitial keratitis, and extensive cicatrisation of the palate. There were numerous enlarged glands in the neck, on both sides, on the occiput, under the chin, above the left clavicle and in the left axilla. The subcutaneous

tissue of the neck was swollen, had been œdematous and formed a thick collar encircling the throat, in which the glands could be felt. There was no evidence of enlargement of the thoracic glands and the spleen could not be felt. Dr. Cameron considered that the glandular enlargement was directly connected with syphilis.

Sudden Occlusion of the Right Brachial and Femoral Arteries in an Infant aged 10 Days with Gangrene of Arm and Leg; Recovery of Arm; Amputation of Thigh.—Dr. H. C. Cameron.

Leukæmia with Scalp Nodules.—Mr. T. H. Gunewardene (*vide* p. 9).

Isolated Disease of Tarsal Scaphoid—Köhler's Disease.—Mr. P. Maynard Heath (*vide* p. 28).

Splenectomy for Splenomegalic Cirrhosis.—Dr. E. Bellingham Smith.—The patient was first seen by him in 1911. He was a small, puny boy and was said to be wasting; there was nothing definite to be found about him, except that he had a moderate enlargement of the spleen and liver. The spleen was then about three finger-breadths below the costal margin and the liver two finger-breadths below. In November, 1913, the spleen appeared to be actively growing, and the liver, after first enlarging, began to shrink. After three months' observation the spleen was found to be down to the umbilicus. About that time he had some bleeding from the mouth, and was said to have hæmoptysis. He was admitted to hospital when the spleen was practically resting on the left iliac crest. The liver was now no longer palpable. The blood, which showed a positive Wassermann reaction, contained 5400 leucocytes, and that was maintained during two months' active antisyphilitic treatment. Three months after admission the leucocytes dropped to 2400. The clinical symptoms suggested that the case was one of splenomegalic cirrhosis or Banti's disease in a subject of congenital syphilis. In August the spleen was removed. At the operation the liver was found to be cirrhotic. Twelve days after the operation there was a leucocytosis of 40,000, although a month before the operation the leucocytes were only 2400. The child had been in good health since the operation, which was now five and a-half years ago, and the blood was practically normal; red-cells 5,000,000, hæmoglobin 80 per cent., leucocytes 9400.

Familial Osteo-arthritis.—Dr. R. A. Armstrong showed two cases of chronic joint disease in the same family, the condition being regarded as an osteo-arthritis. The boy, aged 12 years, was brought to hospital complaining of pain in the left knee-joint. He had had occasional attacks of indefinite pains in the joints since the age of four, which were localised in the left knee at the age of seven. He had never complained of his hands, although his mother noted that his finger-joints were swelling as early as the age of four. A year ago he had had general rheumatic pains affecting most of his body; he was not feverish at the time, but had a slight swelling of the left knee- and ankle-joints, which were tender to the touch. Nothing could be found on palpation, nor was there any limitation or undue freedom of movement in the left knee and ankle; the other major joints were normal. There was very marked enlargement of the finger-joints—the more pronounced

for the relative slenderness of the phalanges themselves, due to wasting of the soft parts—and this condition was especially marked in the distal interphalangeal joints, particularly of the second and third fingers. There were well-marked knobs or bosses on the sides of the distal joints, which might fairly be likened to the Heberden's nodes characteristic of the type of osteo-arthritis of the smaller joints which occurred in adults. Skiagrams showed at present only atrophy of the ends of the shafts and epiphyses. The terminal phalanx of the little finger of each hand had undergone actual pathological dislocation towards the radial side. There was no grating, and no evidence of erosion of cartilage could be obtained, but the movements of the fingers were somewhat limited and the boy was unable to make a satisfactory fist. A similar but less advanced condition existed in the toes, and his habit of everting his left foot when walking expressed an unconscious attempt to lessen the stress of walking on the toes of that foot, of which he complained more than of the right. In all joints the pathological condition was articular with wasting of surrounding tissues and tendons rather than periarticular. In appearance the boy was rather pale and small, and he was below the average physical development for his age. No focus of infection had been found in the naso-pharynx or teeth. There was no enlargement of lymphatic glands and the spleen was not palpable. His sister, aged 11 years, showed a similar but less advanced condition of the finger-joints, the bony changes being relatively slight. The condition was slowly progressive, but she was to all appearance otherwise a healthy child. The mother had a typical osteo-arthritis of the smaller joints, which was becoming slowly worse. The two other children of the family—both girls—were free from the condition and both healthy. One child of a maternal aunt, a girl aged 20 years, developed a similar affection of the joints in childhood, and now had crippled fingers, and the maternal grandfather and great grandfather were also affected. Dr. Thursfield had devoted considerable time to a search through current literature and failed to find any reference to a condition similar to that described. It would seem that the cases afforded strong evidence in favour of the view that osteo-arthritis might truly be described as a disease of degeneration rather than due to an infective agent or to toxic absorption.

SECTION OF DERMATOLOGY.

November the 20th, 1919.

Case for Diagnosis.—Dr. E. G. Graham Little showed a boy, aged 15 years, with a waxy, semi-translucent tumour on the inner surface of his right ala nasi, about ¼ in. above the level of the surrounding surface and about ½ in. in diameter. The tumour had first appeared about the age of four and two attempts had been made to remove it, but it had recurred. The possibility of rodent ulcer suggested itself.

In the subsequent discussion the President, Dr. A. Whitfield, suggested that it was a localised sebaceous adenoma, Dr. J. M. H. MacLeod thought the lesion was nævoid and partly composed of sebaceous tissue, and Dr. H. G. Adamson regarded it as an example of milium.

Case of Érythrodermie Congénitale Icthyosiforme.—Dr. H. W. Barber.—The patient was a boy, aged 7 years, the last but one of a family

of ten children. No other children in the family were affected, and no history of a similar condition of the skin among members of either parent's family could be obtained. He was a full-term child. According to the mother's statement he was born with thick whitish skin on the palmar and plantar surfaces; elsewhere the skin was quite soft and smooth. When four months old he developed lesions on the scalp and body, which were diagnosed as "eczema," but from the mother's description it was more likely that they were a bullous impetigo. When three years old the skin of the trunk and limbs became roughened and covered with horny growths, and the present appearances had existed for several years. The face was spared, and there was no ectropion such as was present in some cases. The scalp was scaly. The palms and soles were distinctly hyper-keratotic. The nails were poorly developed but not fissured. The skin of the neck, axillæ, antecubital fossæ, groins, popliteal spaces, elbows, knees and of practically the whole trunk was roughened, reddened in places, and covered with dark horny vegetations. In some parts, *e. g.* forearms and legs between ankle and knee, the skin was practically normal. A musty odour like that described in Darier's case was perceptible. There was no doubt that the case should be included in the group ichthyosiform erythrodermia. It was very similar to a case described by Darier as "érythrokératodermie verruceux en nappes symétrique et progressive." A complete review of the literature would be found in the 'Journal of Cutaneous Diseases,' May, June, August, 1917.

Multiple Xanthoma in a Boy.—Dr. H. G. Adamson.—The patient was aged 6 years. The eruption was first noticed by the mother six months ago and had gradually increased. The whole trunk was covered with numerous small raised reddish-yellow plaques varying in size from that of a hemp-seed to that of a split-pea. There were a few lesions also in the neck, scalp, upper arms and thighs. The smallest lesions were slightly raised flat discs with a slight central depression. They had an angular margin, were soft to the touch and apparently quite superficial. Their colour was reddish-yellow, but on firm pressure the red colour disappeared and the lesion became of a bright sulphur-yellow colour. The large lesions were made up of very closely-set angular plaques blended to form a single plaque, but the elements of these could be made out by a slight grooving of their surface. There was no itching. There was no sugar or albumin in the urine. A microscopical section showed numerous xanthoma cells, many of them large and multinucleated. The eruption belonged to a group of cases which had been described as occurring in children and sometimes called congenital xanthoma, in spite of the fact that they did not always appear at birth nor even soon after. Some authorities had distinguished these juvenile cases from adult cases of xanthoma, and regarded them not as inflammatory but as new growths of nævoid character. The age of onset of the juvenile cases varied from birth to sixteen years.

SECTION OF NEUROLOGY.

December the 11th, 1919.

Complete Bilateral Spastic Paralysis of Face, Jaw, Tongue and Larynx, following an Acute Illness.—Dr. James Collier.—A girl, aged 10 years, was in every way healthy and normal until six years of age when she

contracted scarlet fever. Three weeks later, when convalescent, she was said to have acquired meningitis, the symptoms of which consisted in her developing a squint and becoming unconscious and lying semiconscious for three weeks. Her limbs were not paralysed during that time. She had never been able to speak nor to move her limbs voluntarily, nor to eat nor swallow naturally since regaining consciousness. She was a very intelligent child and wrote well. With the exception of slight perversity of movement in the use of the fingers (she constantly used the middle finger of both hands instead of the index finger for acts involving approximation with the thumb) the condition of the limbs and trunk was in every way normal. The ocular movements were normal and performed at command. Except for retraction of the angles of the mouth there was no volitional movement of the face, jaw, tongue or larynx. The face was in spasm, as shown by the frowning expression and the retraction of the angles of the mouth. The teeth were tightly clenched, with occasionally a little audible grinding, and the masseters were in spasm. There was much dribbling of saliva, which she circumvented with her handkerchief so as to keep herself quite clean. She fed by pressing soft food into her cheek with her finger, closing the oral aperture with her hand and squeezing it through the teeth by the pressure of her fingers upon the cheek. The reflex movement of the eyelids was normal. Reflex swallowing was normal. The emotional movements of the face in smiling and crying were normal, and during those movements only was the mouth opened and it was then opened widely. The associated movements of the face on effort were normal. She made no attempt at articulation. She had recently begun to use a slight laryngeal grunt as a query and as an affirmative.

SECTION OF OTOLOGY.

November the 21st, 1919.

Congenital Redundant External Meatus; Repeated Abscess-formation; Excision.—Dr. Dan Mackenzie (*v.* p. 30).

Traumatic Facial Paralysis produced in an unusual way.—Dr. H. J. Banks-Davis.—A boy, aged 8 years, was climbing a wall when he fell and was impaled on a fine-pointed iron spike, which perforated the tip of the mastoid process and produced instant facial paralysis. Reaction of degeneration on the left side was complete and the face was still paralysed after three months' electrical treatment. The wound in the mastoid was minute and the skin lesion only required one stitch. Rapid healing resulted with no complications whatever. Hearing was unaffected and a skiagram of the mastoid process was negative. The fine spike must have penetrated the mastoid and "hit off" the facial nerve in the region of the stylo-mastoid foramen. The boy was having regular electrical treatment and the palsy was diminishing.

SECTION OF SURGERY.

Sub-Section of Orthopædics.

October the 7th, 1919.

Case of Coxa Vara after Reduction of Congenital Dislocation of Hip.—Mr. E. Laming Evans.—The patient was aged 12 years. In March, 1913, Mr. Evans reduced by manipulation a left-sided congenital dislocation of the hip. The reduction presented no difficulty, and an X-ray examination after reduction showed no evidence of trauma either at the epiphysial line or in the neck of the femur. Retention was effected by a series of short unilateral plaster spicas in 90° of abduction and 50° to 70° of flexion for eighteen months; 50° to 70° of flexion was necessitated by a tendency to anterior transposition. During the last twelve months of plaster retention the child walked on a 5-in. patten on the left or affected leg. After the plaster was removed a $1\frac{1}{2}$-in. patten was used on the sound side, to maintain abduction of the affected side. When the plaster was removed the affected leg measured $20\frac{3}{4}$ in. and the good leg 21 in. The child had been kept under observation. Six years after reduction the leg measurements were: left, $25\frac{3}{4}$ in.; right, 26 in. Six months later the difference had increased to $\frac{1}{2}$ in., and the X ray showed a varal deformity of 100° occurring at the junction of the neck and great trochanter. The epiphysis was seen correctly placed upon the neck and situated correctly in the acetabulum underlying a well-formed roof.

The occurrence of coxa vara after reduction of congenital dislocation of the hip had an important bearing upon the functional results of a successful reduction. It produced a limp from shortening of the leg and from gluteal insufficiency, which, though of different origin and of lesser severity than that of unreduced dislocation, was nevertheless regrettable, and, if possible, to be avoided. The recognised causes had been classified under five heads: (1) Trauma inflicted at the time of reduction, either upon the epiphysis or the femoral neck; (2) prolonged weight-bearing, either before or after reduction; (3) absence of ossification in the head of the femur; (4) absorption of the ossific centre which had appeared; (5) acute traumatic reflex atrophy. That coxa vara was a not uncommon complication of successful reduction of congenital dislocation had been shown by Joachimsthal, Horvath and others. The points of interest in the present case were the remote period, *i. e.* six years after reduction, and the site of binding, *i. e.* at the junction of the neck and great trochanter. The functional disability with 100° of varal deformity was slight, but it necessitated further observation, and if progressive, treatment by a perinæal crutch.

Two Cases of Secondary Scoliosis.—Mr. P. B. Roth.—Case 1: Scoliosis due to paralysis of erector spinæ. Girl, aged 8 years, first seen in December, 1918, with the following history: She had been a strong, healthy child till October, 1916, when after a few days' drowsiness and loss of appetite, followed by feverishness and vomiting, she was found to be completely paralysed in both legs. She was treated by massage, and after a few months by a jacket as spinal curvature developed, and then by plaster-of-Paris, which was applied twice. On examination by Mr. Roth in December, 1918, there was some paralysis of the right erector spinæ, with

)-shaped scoliosis, there being severe deformity of the right ribs posteriorly, while the upper part of the trunk overhung the lower part to the right. A tracing was taken of the amount of rib deformity, and daily treatment by posture and exercise begun. She was not allowed to walk about, but spent the day lying in a spinal carriage, either supine, or prone with her body supported on her elbows with a cushion under her chest. She was allowed to sit up to the table on a chair for meals. In the summer she was taught to swim. At the present time she was much stronger than when she was first seen in 1918, and there had not been the slightest increase in the amount of structural deformity of the ribs. Case 2: Scoliosis due to congenital malformation of the spine. Girl, aged 5 years, first seen on December the 12th, 1918. On examination there was S-shaped scoliosis, with severe deformity of the left ribs posteriorly and with moderate projection backwards of the right erector spinæ in the lumbar region. She could be placed in a very much improved position and could retain it. A skiagram showed that an extra half vertebra carrying a rib was interposed on the left side between the eleventh and twelfth dorsal vertebræ, and that only the right half of the ninth dorsal vertebra was present, it being fused with the body of the tenth; four ribs, two on each side, sprang from the fused mass. Other abnormalities were also present. A tracing having been taken of the amount of deformity, treatment by posture and exercise was begun on January the 9th, 1919. She now held herself in excellent position, and the rib deformity had not increased. The two cases were shown to demonstrate that the progress of deformity could be arrested without resorting to mechanical support.

Case of Infantilism.—Mr. R. C. Elmslie.—The patient, a girl, aged 15 years and 10 months, was said to have been healthy as a baby. At 1 year and 9 months she had diphtheria, and after this suffered from gastro-intestinal disturbances with recurrent attacks of diarrhœa until the age of thirteen. Since that time her general health had been much improved, and was now excellent. Her height was only 3 ft. The head measured 20 in. in circumference, the forehead being rather high and square. The spine was scoliotic, with right dorsal and left lumbar convexities. There was coxa vara deformity of both hips with limitation of abduction, a slight degree of genu valgum and anterior curvature of both tibiæ. X rays of the hips showed coxa vara of the rickety type, the whole neck of the femur being bent without alteration in position of the epiphysis. X rays of the wrists showed cupping of the ends of the diaphysis with widening of the epiphysial cartilages as in rickets; those of the tibiæ showed a general lightness of the bone with a very thin compact layer. Sexual development was absent, the breasts undeveloped, pubic hair absent and menstruation had not yet commenced. The urine contained a trace of albumin. So far there had been no opportunity of investigating the child's general metabolism. Two conditions were present, each of which was found associated with infantilism, namely albuminuria and the chronic intestinal trouble.

Abstracts from Current Literature.

Acute Infectious Diseases.

Leucocyte counts during influenza in infants and children (*'Amer. Journ. Dis. Child.,'* 1919, xviii, *p.* 153).—**J. C. Montgomery** and **E. C. Dunham** made blood-studies in thirty cases of influenza in children aged from birth up to twelve years, and came to the following conclusions: (1) The tendency in uncomplicated influenza in infants and children is towards a leucopenia rather than a leucocytosis. (2) There is a tendency towards a slight leucocytosis in cases complicated by pneumonia. (3) In all the fatal pneumonia cases in their series the leucocyte counts were under 10,000. (4) The prognosis in general was better in pneumonia cases which showed leucocytosis. (5) Differential counts showed (*a*) a tremendous variation in the differential formula; (*b*) nothing sufficiently constant to be of much aid in diagnosis and prognosis.

J. D. Rolleston.

Influenzal croup (*'Amer. Journ. Dis. Child.,'* 1919, xvii, *p.* 377).—**J. C. Regan** and **C. Regan** state that influenzal croup is most frequent in children between the ages of three and ten, boys being more often affected than girls. The bacteria found are similar to those noted in general among influenza cases. In the nasopharynx there was a predominance of Pfeiffer's bacillus, pneumococcus and *Micrococcus catarrhalis*. In the cultures from the sputum, streptococci, pneumococci and Pfeiffer's bacillus were most common, with pneumococci and staphylococci in smaller numbers. In post-mortem cultures from the larynx and trachea staphylococci were most constant, Pfeiffer's bacillus and pneumococci being next in order of frequency. The symptoms of influenzal croup follow the attack of influenza after an interval of two to ten days and are similar to those of laryngeal diphtheria, the chief differences being as follows: In influenzal croup the tonsils and larynx are free of membrane, the mucous membrane of the throat having a deep red, dry, glistening appearance, unlike the more moist appearance common in diphtheria. The mucosa of the mouth is parched, and in the early stage the tongue is dry and feels hot to the touch. On auscultation numerous sibilant and sonorous *râles* are heard. The treatment found most effective by the writers was the use of steam inhalations carried out in a small room in which the saturation of the atmosphere with vapour could be carefully controlled. Poultices to the neck and morphia and atropine were also used. Intubation, which was tried in six cases, aggravated the condition, as the pressure of the tube increased the congestion in the mucous membrane and so added to the obstruction.

J. D. Rolleston.

Influenzal croup (*'Amer. Journ. Dis. Child.,'* 1919, xviii, *p.* 238).—**H. L. Lynah** states that an occasional feature of influenzal croup is the absence of gradual progressive rhythmic inspiratory and expiratory dyspnœa which is frequently present in diphtheritic croup. A persistent recurrent glottic spasm is sometimes met with, which gives rise to a well-

marked crowing sound, and if subglottic stenosis is present there is an expiratory croupy cough. The cough may be a combination of a whoop and a croup. Relief was afforded by epinephrin hypodermically.

J. D. Rolleston.

Post-influenzal encephalitis (*'Amer. Journ. Dis. Child.,'* 1919, xviii, *p.* 83).—**H. Heiman**, who reports eight cases, distinguishes the following three main forms depending on the severity and most prominent symptoms: (1) Irritable, (2) lethargic, (3) lethargic with paralysis. The ages of the patients ranged from four months to thirteen and a-half years. Only one of the cases showed definite changes in the cerebro-spinal fluid—viz. a lymphocytosis. In two cases the children became imbeciles, and in three others the paralysis, though considerably improved, did not disappear.

J. D. Rolleston.

Diphtheria in the newborn (*'Med. Klinik,'* 1919, xv, *p.* 1192).—**F. Lonne** states that diphtheria is a relatively common occurrence among the newborn, though it is often not recognised as such owing to the frequent absence of symptoms. In the course of the last ten years Lonne observed 35 cases of nasal or umbilical diphtheria, or both combined, among newborn infants in the Göttingen University Obstetrical Department. Twenty showed clinical symptoms of diphtheria and 15 none at all; 3 cases, or 8·6 per cent., were fatal. The prognosis of diphtheria in the newborn is good except when complications occur, such as bronchitis, broncho-pneumonia, influenza, otitis or nutritional disturbance, when it is extremely unfavourable. Treatment consists in intramuscular injections of 2000 units of antitoxin and instillations of adrenalin in twice as much boracic lotion in nasal diphtheria, and the application of a mild disinfectant ointment when the umbilicus is affected.

J. D. Rolleston.

Diphtheria of the nose and ear in an infant, aged 30 days (*'La Pediatria,'* 1919, xxvii, *p.* 785.)—**L. Spolverini** reports a case of diphtheria of the nose and middle ear in an infant suffering from congenital syphilis. The nostrils were reddened, and there was a sanious nasal discharge. There was purulent discharge from the left ear. Diphtheria bacilli were found in the nasal discharge and in the pus from the ear in association with a few diplococci. Considerable improvement followed two injections of diphtheria antitoxin, the first consisting of 2000 units and the second of 1000 units, and syringing the nose and ear with a 1 per cent. solution of protargol. The child, however, was removed from hospital before complete recovery took place. Infection had probably been caused by a carrier, as there was no case of diphtheria in the family.

J. D. Rolleston.

Eosinophilous myocarditis in diphtheria (*'Journ. Amer. Med. Assoc.,'* 1919, lxxiii, *p.* 1925).—**F. Nuzum,** in sections from various parts of the auricles, ventricles and papillary muscles, found eosinophils in seven out of twenty-nine hearts of children who had died of diphtheria, but did not find them in the myocardium of patients who had died of various other diseases, such as scarlet fever, meningitis, poliomyelitis or measles. The myocardial eosinophilia appeared to have no relation to the severity of the clinical symptoms or to the degree of myocarditis or the amount of serum used. Nuzum regards the occurrence of eosinophilous myocarditis as due to a positive chemotaxis, some substance being present in the myocardium in response to which eosinophils migrate from the capillaries.

J. D. Rolleston.

Generalised diphtheritic polyneuritis without apparent diphtheria (*'Arch. Lat.-Amer. de Pediat.,'* 1919, XIII, *p.* 434).—**Ponce de Leon** records a case of generalised diphtheritic polyneuritis in a girl, aged 8 years. There was no history or evidence of diphtheria, but a throat culture showed the presence of diphtheria bacilli. Twenty c.c. of diphtheria antitoxin was injected and rapid recovery took place.

J. D. ROLLESTON.

The Schick reaction (*'Lancet,'* 1920, I, *p.* 192).—**H. M. Leete.**—0·2 cm. of diluted diphtheria antitoxin is injected intracutaneously. A positive reaction is shown within 24–48 hours by redness and infiltration, oval in outline, half an inch in diameter, thus indicating that the patient lacks natural antitoxin. In a negative test nothing is noted. A positive reaction leaves a pigmented and desquamating surface. There are also pseudo-reactions due to the proteins which are characterised by earlier development, infiltration, and by absence of the subsequent pigmentation. A control test should be tried on the other arm by heating the toxin to 75° C. for ten minutes, by which means the specific toxin is destroyed, leaving the proteins which cause the pseudo-reactions unchanged. A large proportion—37·2 per cent.—of 500 scarlet-fever patients were found to react positively, the positive reactions decreasing with advancing age; 110 cases which had received therapeutic antitoxin one to seventy days previously were tested and 109 were negative. Sixty-one of these, however, showed pseudo-reactions. Eleven of the 500 cases developed diphtheria, and of these 10 gave a positive result. Among 32 cases 18 were negative and 14 positive. No work was done in the immunisation of positive cases.

CHRISTOPHER ROLLESTON.

Jaundice at the onset of scarlet fever (*'Paris Med.,'* 1920, I, *p.* 63).—**Meurisse** records a case in a boy, aged 14 years, in whom the onset of scarlet fever was accompanied by well-marked obstructive jaundice of about a week's duration. The liver and gall-bladder were enlarged and tender. The fæces were pale and the urine contained bile-pigment. Meurisse attributes the condition to an angio-cholecystitis accompanied by an abundant exudation of mucus in the bile canaliculi. The rapidity of its development and the negative result of a blood-culture were against the jaundice being due to an ascending microbial infection.

J. D. ROLLESTON.

A case of scarlet fever with pneumonia as a complication (*'Med. Record,'* 1919, XCVI, *p.* 763).—**A. Lobell** records a case of lobar pneumonia which developed a fortnight after the onset of scarlet fever in a girl, aged 4 years. The disease was also complicated by suppurative otitis media and acute nephritis. Recovery took place. J. D. ROLLESTON.

Insusceptibility of man to inoculation with blood from measles patients (*'Bull. Johns Hopkins Hosp.,'* 1919, XXX, *p.* 257).—**A. W. Sellards** inoculated eight apparently susceptible individuals with measles blood in various ways, but none developed the disease. He points out that failure to transmit measles does not preclude the existence of the virus in the blood-stream even in moderate amount. Some evidence was obtained indicating the possibility of producing active immunity by injection of the patient's blood. J. D. ROLLESTON.

The reaction of monkeys to the inoculation of measles blood (*'Bull. Johns Hopkins Hosp.,'* 1919, xxx, *p.* 311).—**A. W. Sellards** refers to the previous paper by Wentworth and himself (*vide* British Journal of Children's Diseases, 1919, xvi, *p.* 108), in which it was shown that the reactions following intensive inoculation of a small group of monkeys were too indefinite and inconstant to permit the practical use of monkeys in testing the blood of patients for the virus of measles. In the present paper he reports that he injected blood from two early cases of measles in the pre-eruptive stage subcutaneously and intra-peritoneally into two monkeys. One animal remained free from symptoms; the other developed a moderate leucopenia, and later a slight rash. A portion of the same specimen of measles blood was injected subcutaneously and intramuscularly into two susceptible human volunteers without any symptoms resulting. A specimen of blood from the monkey which subsequently developed a rash was injected into a susceptible volunteer but produced no symptoms. Normal serum injected into monkeys was followed by a very slight erythema appearing about eight to ten days after injection in four out of ten animals. The weight of evidence in the experiments was against the interpretation of symptoms in the monkey as representing a reaction to the virus of measles.

J. D. Rolleston.

Varicella and sunburn (*'Arch. de méd. des enf.'* 1919, xxii, *p.* 657).—**P. Gautier** states that though the eruption of varicella is usually generalised, cases may occur in which the vesicles are found in greatest abundance in regions in which the skin has been irritated, *e.g.* by applications of iodine, scratching, flea-bites, eczema, etc. He records two cases in children, aged 3 and 8 years respectively, in whom the eruption appeared, if not exclusively, at all events with remarkable intensity, in the regions of the body (back and shoulders) which had been irritated by too long exposure to the sun's rays.

J. D. Rolleston.

Herpes zoster and varicella (*'Edin. Med. Journ.,'* 1919, ii, *p.* 34).—**A. D. Fordyce.**—A boy, aged 16 years, developed herpes zoster, and fourteen days later his brother developed varicella. Three days later the characteristic rash of varicella began to appear in a baby sister, aged 1 year 11 months. So far as could be ascertained none of the three cases had been in contact with varicella.

J. Allan.

The transmission of smallpox infection to the fœtus (*'La Pediatria,'* 1919, xxvii, *p.* 193).—**S. Capellani** describes five cases which prove that the transmission of infective diseases from the mother to fœtus through the placenta is more common than is thought, and not only when the mother has actual morbid manifestation, but also in the incubation period, To the fœtus still *in utero* there may come from outside germs of infection through a healthy mother who may remain such, but without having any specific immunity against the germ which has passed through her organism in order to reach the product of conception.

Vincent Dickinson.

Purulent arthritis following smallpox and influenza (*'La Pediatria,'* 1919, xxvii, *p.* 655).—**R. Marinucci** describes two cases in which the joints contained a thick creamy pus, giving cultures of streptococci in the former and *B. pyocyaneus* in the latter. Both recovered completely after

treatment by vaccines without damage to the articulations. In the first case both elbows, shoulders and knees were affected, in the second the shoulder only. VINCENT DICKINSON.

Fifty-one cases of pertussis treated with vaccines (*'Arch. of Ped.,'* 1919, XXXVI, *p.* 290).—**H. S. Reynolds** treated a series of 30 cases with unmixed Bordet-Gengou vaccine and 21 with a mixed vaccine, consisting of the Bordet-Gengou bacillus, *Streptococcus pyogenes*, *Staphylococcus pyogenes aureus*, *Micrococcus catarrhalis* and *B. influenzæ*. He found that the average duration of cases treated with the mixed vaccine was 47 days as compared with 62·5 days for those treated with the unmixed vaccine.

J. D. ROLLESTON.

Vaccine treatment of whooping-cough (*'Arch. of Ped.,'* 1919, XXXVI, *p.* 1).—**C. J. Bloom** uses a mixed vaccine containing the Bordet-Gengou bacillus, *Staphylococcus pyogenes aureus*, *Micrococcus catarrhalis*, *B. influenzæ* and *Streptococcus pyogenes*. He gives large doses, at least 5,000,000,000 bacteria at a time, and repeats this dose on alternate days until there is a marked remission of the symptoms. Usually four or five doses suffice. In some cases the vaccine is given every day. The following advantages are claimed for the treatment: (1) It minimises loss in weight; (2) it reduces the duration of the disease; (3) it decreases the intensity of the illness; (4) it foreshadows the possibilities of complications and sequelæ; (5) it is unattended by danger of anaphylaxis; (6) it limits the mortality.

J. D. ROLLESTON.

The bacteriology of mumps (*'Amer. Journ. Med. Sci.,'* 1919, CLVIII, *p.* 698.)—**R. L. Horden** records five cases of mumps in soldiers in which a Gram-positive diplococcus was isolated from the spinal fluid, the blood and a lymph-gland. The injection of the organism into the testicle of a rabbit produced severe orchitis in ten days. Horden concludes that mumps is probably caused by a Gram-positive diplococcus, and not by a filterable virus according to the view recently prevalent (*vide* BRITISH JOURNAL OF CHILDREN'S DISEASES, 1919, XVI, *p.* 110). J. D. ROLLESTON.

Cerebral complications in mumps (*'Amer. Journ. Dis. Child.,'* 1919, XVIII, *p.* 187).—**H. R. Casparis** considers that there is an involvement of the encephalon as well as of the meninges rather than an involvement of the meninges alone in the cerebral complications of mumps. He records two cases in boys, aged 7 and $8\frac{1}{2}$ years respectively, in whom the cerebral symptoms preceded the appearance of the parotid swelling by three to four days, and consisted of headache, delirium, vomiting, convulsions and *tache cérébrale*. Lumbar puncture in both cases yielded a clear sterile fluid under increased pressure, showing lymphocytosis. The symptoms disappeared in a few days, but the cerebro-spinal fluid did not become normal till the thirty-sixth and forty-first days respectively. J. D. ROLLESTON.

Cerebro-spinal fever in infants (*'Lancet,'* 1920, I, *p.* 238).—**Helen Mackay** describes eight cases, all of whom recovered under repeated punctures, followed by intrathecal injection of Lister Institute polyvalent antimeningococcal serum. The serum was continued until negative films and growths were obtained and the punctures continued until a normal pressure was registered. Case 1, aged 2 years and 9 months, was punctured twenty times, and had seven doses of serum, followed by an autogenous vaccine.

On admission he was unconscious and generally rigid. He was in hospital for forty-three days, and on discharge was stone deaf, stuporous, and unable to sit up. Two years later he was examined and found to suffer from complete nerve-deafness, but was intelligent and well developed and able to talk, although in most cases of this age of acquired nerve-deafness complete mutism results. Case 2 was absolutely unconscious and rigid on admission, with extreme retraction and flexion of all four limbs. Seven lumbar punctures were followed by intrathecal injections of serum. Subsequently the tappings were dry and adhesions were diagnosed. The occiput now touched the back, swallowing was difficult and nasal feeding was adopted for six weeks. The loss of weight was extreme. Subsequently he developed into an intelligent and well-developed child. He was 8 months old when admitted to hospital. Case 3, aged 4 years, was characterised by extreme rigidity and retraction and did not begin to improve till the eighty-fifth day. Nasal feeding was employed for forty-five days. There was incessant twitching of the right side of the face and of the right arm. The hair on the trunk and limbs took on rapid growth, and he became very stout from the chronic meningitis affecting the posterior lobe of the pituitary body. He was rickety on admission, but two years later the curvature of the legs was more marked and he was found to be backward but intelligent. Case 4 was characterised by hydrocephalus, which was relieved by twenty-one ventricular punctures and by a chronic turbid infusion into the knee-joint. The latter was cured by two aspirations. She had bad rickets subsequently and was mentally backward. The case is of interest, for recovery is rare after ventricular puncture, and the joints of the hands and the feet are those usually attacked. Case 6, an infant, aged 6 months, was admitted in the premeningitic stage, but the disease was not diagnosed until the eleventh day, when rigidity first appeared. There was no obvious increase of intracranial pressure. The serum was of no use, and improvement set in just before stock vaccines were administered and was rapid and complete. To sum up, five of the cases are healthy, well-developed children and three are backward.

CHRISTOPHER ROLLESTON.

The causes of a sporadic case of cerebro-spinal meningitis (*'Amer. Journ. Dis. Child.,'* 1919, XVIII, *p.* 101).—**H. L. K. Shaw** records an apparently sporadic case in a five months old breast-fed baby in which the source of infection was found to be a healthy carrier. Shaw concludes that sporadic cases are in reality untraced cases, and that the human carrier is responsible for cases appearing either singly or in epidemics.

J. D. ROLLESTON.

The specific treatment of epidemic meningitis (*'Arch. de méd. des enf.,'* 1919, XXII, *p.* 618).—**K. Lewkowicz** regards the lateral ventricles as the principal site of the infection in cerebro-spinal meningitis, and therefore recommends that the injections of serum should be made directly into the ventricles. An injection of 10–20 c.c. should be made into both ventricles every three days. As a general rule the ordinary anti-meningococcal serum should not be given beyond the second week dating from the first injection. Vaccine treatment is indicated from the first in addition to serum-therapy. The value of vaccine treatment is seen principally in severe cases which show no tendency to spontaneous recovery. Lewkowicz reports a series of 22 cases, ten of which were in children, aged from 5 to 11 years, and twelve in adults treated by intra-ventricular injections of serum.

J. D. ROLLESTON.

Typhoid fever in the infant (*'Arch. des mal. des enf.,'* 1919, XXII, *p.* 183).—**J. Crespin** and **B. Saracino,** of Algiers, state that typhoid fever is by no means exceptional in the infant. Many cases which at first sight appeared to be examples of ordinary gastro-enteritis proved to be typhoid fever on more careful examination. From January, 1915, to January, 1918, the writers observed 42 cases in infants, 36 of which were typhoid and 6 paratyphoid. With two exceptions, in which the mothers were suffering from the disease and nursing their children, all the patients had been artificially fed, so that they had probably been infected by water. In only 18 of the 42 cases had the previous health been good, most of the other infants being atrophic, rickety, tuberculous or syphilitic. The time of the year in which most of the cases occurred was the summer and autumn, especially the month of September. As regards the age of the patient, the younger the child the rarer the disease: only one case occurred at the age of two months, and another at three months; between three and twelve months there were 6 cases of typhoid and one of paratyphoid A. The symptomatology usually is very incomplete. As a rule it is the digestive disturbances which attract attention, the clinical picture being that of an ordinary gastro-enteritis. The mode of onset in most cases was indefinite. The duration of the disease was usually fairly short, not exceeding twenty to thirty days as a rule. The temperature generally fell by lysis. Convalescence was often protracted, being associated with persistent digestive disturbances, anorexia and loss of flesh. Rose-spots were uncommon, being found in only 6 cases—5 of typhoid and 1 of paratyphoid B. The pulse was usually quick, and corresponded to the temperature; the dissociation between the two characteristics of the disease in the adult was hardly ever observed in the infant. Enlargement of the spleen was of less diagnostic value than in temperate climates, owing to the frequency of malaria in infants. More or less intense nervous disturbances in some amounting to a meningeal syndrome were observed in 12 cases. Death occurred in 6 out of 36 cases, or in about 16 per cent. Treatment should be as simple as possible. The writers derived excellent results from warm baths and washing out the bowel with potassium permanganate if the stools contained mucus and blood. Milk as a rule was well tolerated, contrary to what occurs in ordinary enteritis. J. D. ROLLESTON.

The bacteriology and vaccino-therapy of infantile dysentery (*'La Pediatria,'* 1919, XXVII, *p.* 550).—**F. P. Borrello** records twenty-four cases which show that infantile dysentery is a relatively frequent affection occurring sporadically and epidemically. The epidemics coincide with those of the adult and the infection may attack the child at any period of life, being more dangerous the younger the infant, and especially when it occurs during other infections, such as influenza, measles or leishmaniosis. The germs isolated belonged to both the Shiga and Flexner type, the former being more frequent, especially in epidemics. A rigorous technique rendered the isolation of the germs relatively easy. A certain degree of leucocytosis was present, both in primary and secondary infections. Marked changes in the hæmoglobin content were not noticed nor in the number of red cells even when the disease lasted over a long period. Neither were there any appreciable modifications in the leucocytic formula. The highest mortality was in Shiga forms, on account of grave toxic disturbances which chiefly affected the myocardium. Flexner forms might also prove fatal, especially in secondary infections; in primary forms the number was too

small to draw any definite conclusion. In Shiga forms the adynamic, the hyperpyretic and the meningeal (convulsive) were well established, hæmorrhagic forms being infrequent. Treatment consisted chiefly of vaccine therapy, the success of which was in direct relation to its early employment; its importance was incontestable in Shiga forms, which were always fatal if treated symptomatically only. Symptomatic treatment and suitable diet, however, were not lacking in efficacy. VINCENT DICKINSON.

Generalised pyocyaneus infection in infancy (*'La Pediatria,'* 1919 XXVIII, *p.* 503).—**A. F. Canelli** states that most cases of *pyocyaneus* infection on record refer to the localisation of the bacillus in special organs such as the mouth, pharynx, trachea, intestine, skin, etc., where the presence of the organism may be physiological, and it is exceptional to meet with cases of generalised infection either in adults or children. Canelli records two fatal cases of this kind in a brother and sister aged $2\frac{1}{2}$ months and 14 months respectively. In both cases the disease ran a rapid course. In the older child, who was the subject of chronic enteritis, the origin of infection was probably a boil on the neck. Death was preceded by the development of numerous petechiæ and blood-stained stools. Cultures of the blood and spleen showed the presence of *B. pyocyaneus*. In the younger child, who was most probably infected by his sister, the portal of entry of infection being either the intestine or bladder, death took place from acute meningitis, and *B. pyocyaneus* was cultivated from the meningeal exudate, spleen, heart-blood, urine and fæces. J. D. ROLLESTON.

Acute febrile disease in industrial schools (*'Glasg. Med. Journ.,'* 1918, II, *p.* 84).—**A. Maclean** refers to outbreaks of acute febrile disease which occurred in one industrial home for boys in Glasgow and in two industrial schools and a public school in Lanarkshire. Three types of the disease may be recognised:—(1) The mild non-pulmonary type (usual type), in which the onset is sudden, headache and prostration being the chief symptoms. There is feverishness, the temperature varying from 99° F. to 103° F. Recovery is rapid. Less frequent symptoms are nausea and vomiting. Sore throat is a rare complaint. (2) The malignant type in which the onset is sudden, coma, varying occasionally with delirium, rapidly supervenes, and death takes place frequently in less than twenty-four hours. (3) The pulmonary type in which the symptoms are similar to those of the first type, but symptoms of pulmonary involvement, with breathlessness and sometimes cyanosis, are superadded. Congestion, œdema, or consolidation of the bases of one or both lungs may occur. The absence of nervous symptoms, *e.g.* ptosis, Kernig's sign, strabismus, pupillary irregularity, etc., is a noteworthy characteristic. The pathology of the disease has not been completely established, but it may be noted that there is a resemblance to epidemic poliomyelitis. The bacteriology has not been completely investigated. The bacillus of influenza is invariably absent. A Gram-negative diplococcus resembling the pneumococcus has frequently been obtained from the nose, throat, lungs and membranes of the brain.
J. ALLAN.

Weiss's urochromogen reaction in infantile pathology (*'La Pediatria,'* 1919, XXVII, *p.* 139).—**U. Provinciali** finds that this reaction has no specific value for tuberculous processes nor for those of typhoid and paratyphoid. It occurs, although for the most part less intense and less

frequently, also in healthy subjects and those suffering from other morbid processes, whether febrile or non-febrile, and hence does not constitute a new diagnostic substitute which could either conveniently or accurately compete with methods already known, such as the diazo reaction or von Pirquet's test. VINCENT DICKINSON.

The urochromogen reaction in different diseases of children (*'La Pediatria,'* 1919, XXVII, *p.* 625).—**O. Cozzolino.**—In 1917 De Silvestri advocated a new reaction discovered by him in the urine of typhoid patients as being of valuable diagnostic aid when it was impossible to carry out Widal's agglutinating test, the intradermo-reaction of Janeret or hæmoculture. By its simplicity it should be specially useful to practitioners in districts where laboratory help is unobtainable, for it consists merely in placing 2 c.c. of a solution of perchloride of iron in a test-tube, adding 4 or 5 drops of pure sulphuric acid, and then introducing drop by drop through a pipette the urine previously filtered down the side of the tube. A positive reaction consists in the formation of a brown ring at the junction of the fluids, and is stated to be found in 95 per cent. of cases of typhoid, while it is never present in the early stages of tuberculosis, influenza, rheumatism and other febrile conditions. The reaction is, moreover, weak, moderate or intense, the first variety occurring in paratyphoid A. Cozzolino examined the reaction in healthy children and in those suffering from broncho-pneumonia, 13 cases; tuberculous glands, 9 cases; tuberculous peritonitis, 3 cases; pulmonary tuberculosis, 8 cases; tuberculous meningitis, 2 cases; surgical tuberculosis, 7 cases; scrofula, 2 cases; pleurisy, 3 cases; empyema, 2 cases; acute enterocolitis, 5 cases; acute nephritis, 3 cases; whooping-cough, 3 cases; measles, 2 cases; acute osteo-myelitis, 1 case; mastoiditis, 1 case; catarrhal jaundice, 2 cases; varicella, 3 cases; infantile paralysis, 2 cases; acute bronchitis, 9 cases; acute rheumatism, 1 case; and cerebro-spinal meningitis, 1 case. His general conclusion was that while the reaction was for the most part negative in these diseases, it was occasionally positive in a weak or moderate degree in tuberculous meningitis, measles, mastoiditis, empyema and cerebro-spinal meningitis. In cases of typhoid and paratyphoid it was much more delicate than either Weiss's or Ehrlich's reaction, which were used as controls. VINCENT DICKINSON.

The elimination of acetone bodies during infectious fevers (*'Amer. Journ. Dis. Child.,'* 1920, XIX, *p.* 141).—**B. S. Veeder** and **M. R. Johnston,** as the result of observations on forty-one children with scarlet fever, diphtheria, measles and pneumonia, came to the conclusion that while an increased elimination of acetone bodies might occur in infectious disease, this did not invariably take place. In the same patient it might occur during one infection and not during a second. Acetonuria was not dependent on the severity of the infection or the degree of temperature, and its causation could not be explained by the decreased intake of food, which is so constantly associated with an infectious process. J. D. ROLLESTON.

Dermatology and Syphilis.

The histology and ætiology of erythema nodosum (*'La Pediatria,'* 1919, XXVII, *p.* 433).—**C. Pestalozza,** from his observations, is inclined to maintain the tubercular origin of this complaint. Histological researches, if they do not afford definite proof in favour of this theory, are not, however, opposed to it. He therefore asserts that the occurrence of erythema nodosum is merely the manifestation of a tuberculous condition already started, which

may become latent and only show itself in a cuti-reaction. In answer to the query why erythema nodosum is rare while tuberculosis is common, he found in his clinic that out of 746 children definitely affected with some form of tuberculosis only 7, or 1·06 per cent., had erythema nodosum. If therefore tuberculosis is to be considered the ætiological factor in this affection, there must exist other determining causes which can provoke the outbreak of a typical erythematous eruption in a tuberculous subject. He considers that this factor, rather than being traumatic, is of the nature of a disturbance of circulation, either central (cardiac) or peripheral (thrombotic), and that arrest or retardation of the blood-stream at certain points might enable the tuberculous toxin to provoke the onset of the erythematous nodule. In support of this theory he recalls the fact that the eruption is more frequent in the decumbent parts of the body, in which these causes would more easily act.

VINCENT DICKINSON.

Angiokeratoma (*'La Pediatria,'* 1919, XXVII, *p.* 637).—**A. F. Canelli** gives a full description of a case of this cutaneous affection which was first described by Mibelli in 1890, with photographic reproductions of the macroscopic and histological appearances. This disease has been defined as a dermatosis of infancy and childhood *par excellence*, and may have some causal relationship with chilblains and with the tuberculous diathesis. It is a local circumscribed affection attacking the distal parts of the body and in relation with vascular disturbance, either mechanical or neurotrophic. Epithelial proliferation is constant and characteristic, associated with hypertrophy of the horny layer and eventually of the granular and basal layers. Phenomena of atrophy and degeneration are secondary in relation with the marked compression that the hæmatic lacunæ exert on the various layers.

VINCENT DICKINSON.

Mongolian blue spots at São Paulo (*'Arch. de méd. des. enf.,'* 1919, XXII, *p.* 597).—**C. Ferreira.**—During 1918, 426 infants attended the Infants' Dispensary at São Paulo, Brazil; 390 were white, 27 mulattoes and 9 negroes. Mongolian blue spots were present in 2, or 0·5 per cent. of the whites, in 15, or 55 per cent. of the mulattoes, and in 8, or 88 per cent. of the negroes. The spots occurred in 4 cases in the lumbar region, in 3 in the sacral, in 7 in the sacro-coccygeal, in 1 in the coccygeal, in 4 in the inter-gluteal fold, in 3 on the right buttock, in 2 on the left buttock, and in 1 on different parts of the body. As compared with past years (*vide* BRITISH JOURNAL OF CHILDREN'S DISEASES, 1919, XVI, *p.* 119), the percentage of spots was lower among the white infants, while in the negroes the proportion of spots was higher than before. In the mulattoes the proportion was about the same. The distribution was less varied than in 1917, and cases of multiple spots were infrequent.

J. D. ROLLESTON.

The influence of acute infections on hereditary syphilis (*'Paris méd.,'* 1919, II, *p.* 442).—**V. Hutinel** and **L. Nadal** report several cases to show how meningeal or cerebral manifestations, such as hemiplegia or hydrocephalus, may be produced in subjects of hereditary syphilis by the supervention of an acute infection such as measles, influenza or cerebro-spinal meningitis. Epilepsy and chorea are also liable to develop in heredo-syphilitic children as the result of an acute infection. Other syphilitic manifestations, such as nephritis, anæmia or bony lesions may develop from the same cause.

J. D. ROLLESTON.

Congenital syphilis and rickets (*'La Pediatria,'* 1919, xxvii, *p.* 545).—**S. Cannata** states that from January, 1914, to June, 1919, out of nearly 10,000 infants examined at the Naples Pædiatric Clinique 1285 were suffering from rickets, and of these 478, or 37·27 per cent., were subjects of congenital syphilis, the existence of which was established by the history, clinical evidence, and Wassermann and luetin reactions. There were 58 cases of rickets within the first six months of life, for which all other causes but congenital syphilis could be excluded. Thirty-seven of the 58 cases showed the syndrome described by Marfan as characteristic of syphilitic rickets, viz. craniotabes, pronounced anæmia and enlargement of the spleen; but Cannata has found this syndrome in 18 cases of non-syphilitic rickety infants, and therefore concludes that it is not characteristic of syphilis. He believes that at present there is not sufficient evidence to show that there is a true syphilitic rickets in the sense that the rickets is of a syphilitic nature. It can only be conceded that infants with congenital syphilis frequently show signs of rickets during the first six months of life. He concludes that syphilitic infection either alone or in association with other factors is one of the chronic infections which most frequently favours the development of rickets. J. D. Rolleston.

Infantile scurvy associated with hereditary syphilis (*'Amer. Journ. Dis. Child.,'* 1919, xvii, *p.* 440).—**R. M. Greenthal** reports the case of a female infant, aged 3 months, in whom the presence of syphilis was shown by the family history, symptoms and positive Wassermann reaction in the child and parents, and the presence of scurvy by the changes in the bones and gums and striking response to the administration of orange-juice. Skiagrams showed a white line at the epiphysial margin, multiple fracture of the femurs and tibia just above the epiphyses and periosteal thickening of the shafts of the bones, especially of the femurs. J. D. Rolleston.

Atrophic cirrhosis of the liver in congenital syphilis (*'Arch. Lat.-Amer. de Pediat.,'* 1919, xiii, *p.* 413).—**L. Belloc** and **S. Satanowsky** report a fatal case in a female infant aged 5 months, which developed jaundice when forty days old. Considerable improvement took place under specific treatment, but two months later ascites supervened, and over a litre of reddish-yellow fluid was removed by paracentesis. Death took place five days later. The autopsy showed sclerosis and marked atrophy of the liver and sclerosis of the spleen and kidneys. All other causes of atrophic cirrhosis, especially alcoholism and tuberculosis, could be excluded. The rapid course of the disease, the age of the patient and the autopsy findings indicated that the syphilitic lesions in the liver had originated in intra-uterine life and reached their full development after birth. J. D. Rolleston.

Cerebro-spinal involvement in hereditary syphilis (*'Amer. Journ. Dis. Child.,'* 1919, xviii, *p.* 173).—**P. C. Jeans** states that a review of the literature shows that in early acquired syphilis the cerebro-spinal fluid shows conspicuous changes in from 25 to 40 per cent. of the cases. Lumbar puncture was performed in 214 syphilitic children, 78 of whom were under 2 years, and 136 were aged from 2 to 14 years. The cerebrospinal fluid of 31 of the 78 infants gave a positive Wassermann reaction, and of these eleven had clinical symptoms of neuro-syphilis, chiefly of meningeal involvement. Of the 136 older children, 70 had a clinically active infection and 66 a latent infection. Of the former, 22, or 31 per cent., and of the latter

13, or 20 per cent., had a positive Wassermann reaction in the cerebro-spinal fluid. Thus 35, or 25·8 per cent. of the older children had positive cerebro-spinal fluid reactions, and of these 35 patients 25 per cent. had symptoms or signs referable to the central nervous system. Of the entire group of 214 infants and children the nervous system was involved in 70, or 32·7 per cent. Jeans considers that the treatment of hereditary neurosyphilis need differ in no way from that of acquired neuro-syphilis, since it can be safely carried out with the same intensity in both instances.

J. D. Rolleston.

Wassermann's serodiagnosis in human milk (*'La Pediatria,'* 1919, xxvii, *p.* 343).—**C. Rusca** investigated the presence of syphilitic antibodies in milk, and found that (1) in cases of syphilis actually present or partially cured with early signs of it in the child the result was strongly positive; (2) in cured cases the result was generally negative coincidently with a positive Wassermann reaction in the blood, or showed simply an indication of inhibition of hæmolysis even though the reaction was positive in the blood; (3) in the milk serum of healthy women the result was never positive; (4) a permanent reaction was never seen in milk serum of women after cure when the reaction had disappeared from the blood; (5) there was no difference in behaviour of the reaction in primiparæ and multiparæ; (6) a partial inhibition of hæmolysis was seen in the colostrum serum of healthy women, using large doses (1 to 5 c.c.). This disappeared by the twentieth day—at latest in the second month in the subsequent milk serum.

Vincent Dickinson.

Reviews.

Syphilis in Childhood. By Leonard Findlay, M.D., D.Sc. London: Oxford University Press, 1919. Pp. 154, with 6 Coloured Plates and 37 figures. Price 8s. 6d. net.

In this little book Dr. Findlay gives an excellent account of the chief features of congenital syphilis, based largely on his own experience at the Glasgow Children's Hospital. In a new book on this subject the reviewer naturally turns to the author's views on the problems of transmission and immunity. Dr. Findlay holds that all mothers of syphilitic infants are themselves infected with latent syphilis. This view is based on the fact that the percentage of positive Wassermann reactions in these mothers is the same as that in cases of secondary syphilis, viz. about 95 per cent. To explain the frequent absence of symptoms in the mother, Dr. Findlay suggests that the source of infection is the uterus, which is an unsuitable soil for the growth of the spirochæte, and that the disease remains more or less latent. During pregnancy and the development of the fœtal tissues, which are good nutritive media, the spirochætes flourish and invade the placental tissues. In support of this view he quotes the work of Baisch and others who found spirochætes in the maternal portion of all placentas of 210 mothers of syphilitic offspring, but only 190 of these gave a positive Wassermann reaction. Dr. Findlay suggests that the rare exceptions to Colles' law may be instances of superinfection. Naturally he does not

favour the possibility of pure paternal infection of the fœtus without the mother being infected. The instances reported by Hochsinger and others where a clinically healthy woman gave birth to syphilitic or non-syphilitic children according to whether she was impregnated by a syphilitic or non-syphilitic man, which support the theory of paternal transmission, are explained away by Dr. Findlay by assuming that the apparently non-syphilitic children would have given a positive Wassermann reaction. The problem of the mother's immunity or infection and the problem of paternal transmission cannot even now be regarded as finally settled. At any rate there is considerable clinical evidence to show that many mothers of syphilitic infants go through life without a sign of the disease. The problem, however, is one of academic rather than practical interest, for there is no doubt that the majority of such mothers are infected, and, even when apparently free, the mother of a syphilitic child should receive treatment on the occasion of a further pregnancy.

With regard to ante-natal treatment Dr. Findlay recommends treatment of the pregnant woman by intravenous injections of neosalvarsan combined with mercurial inunction, the latter being continued for some time after pregnancy. In seven cases thus treated a healthy child was obtained in all. As regards treatment of the syphilitic infant, he rightly regards inunction as the best method of administering mercury, and advises its continuance for two years. He, however, considers that the best curative effect is obtained by salvarsan combined with mercurial inunction. For salvarsan treatment he prefers the intravenous method—in infants through the veins of the scalp, in older children through the usual veins at the bend of the elbow.

Touching on the subject of marriage Dr. Findlay considers that a persistently negative reaction for a year after early and thorough treatment by salvarsan and mercury justifies us in giving sanction to marriage. This shortening of the period usually advised would appear to some of us to be unsafe.

The chapters dealing with diagnosis, symptomatology, etc., are clear and concise. There is one error, however, on p. 66, where it is stated that Dean (1910) was probably the first to suggest syphilis as a cause of spastic diplegia, or Little's disease. The syphilitic origin of this condition was upheld by French authors many years before this.

Dr. Findlay's book is well written and well illustrated and contains many original observations and notes of cases personally observed. We can recommend it as a reliable guide to a subject of far-reaching importance.

C. F. M.

La Méningite Tuberculeuse de l'Enfant. By Dr. A. Lesage. 8vo; pp. 194. Paris: Masson et Cie, 1919. Price 4 frs. 50.

This excellent but unassuming little volume is dedicated by Dr. Lesage to one of his pupils, Meaux Saint Marc, who was making a careful study of the subject with which it deals, and was killed at the front in August, 1914, while tending the wounded. Giving a brief historical account, Dr. Lesage mentions the writings of Whytt ('Observations on the Dropsy of the Brain,' 1768) and Rilliet and Barthez (1846) as of the chief importance in the development of correct views on the subject of tuberculous meningitis in the young. The observation of Trousseau (1841) that in infants the disease often takes the form of diarrhœa with wasting, but without the

convulsions usually held to be characteristic of it, has often escaped notice; and the author lays particular stress on the frequency of tuberculous meningitis in infants, and the somnolent type often exhibited by the disease in the very young. Here it frequently escapes diagnosis because the pathological lesions of the meningitis are very slight—perhaps no more than an opalescence of the pia mater at the base of the brain between the branches of the optic chiasma, without any macroscopic miliary tubercles. Under the microscope, however, this part of the pia will show early tuberculous deposits and also tubercle bacilli. Later, of course, visible tubercles develop here and in the adjoining basal pia; but the earlier lesion described above Dr. Lesage believes to be often missed. Tuberculous meningitis is always secondary to tuberculous infection elsewhere in the body, and develops only if the infant or child has a special hereditary predisposition to that localisation of tuberculosis. Describing the semeiology, Dr. Lesage lays stress on the presence of deep, and later also superficial hyperæsthesia, the frequency of somnolent types of the disease in infants, the well-known variability of the clinical picture. The older the child, the more likely is he to react to the infection and develop convulsions, periods of excitement and the like before passing into a terminal coma. In the chapter on diagnosis a full account of "meningism" is given. In meningism there is a sudden outburst of symptoms and signs suggesting meningitis of one sort or another, of short course and variable intensity; recovery is invariable and the cerebro-spinal fluid is normal. The prognosis in tuberculous meningitis is practically hopeless, though long remissions may occur in its course. Dr. Lesage would accept as recoveries from it only those cases in which the presence of tubercle bacilli in the cerebro-spinal fluid has been proved by injection into healthy guinea-pigs, and the subsequent development of tuberculosis in them. As for treatment he can recommend none as being of the least use. It is clear that the author is a skilled clinical observer and has had a great experience in the care of infants and children with tuberculous meningitis. There is a certain artlessness about his book, and it may be strongly recommended to the attention of all medical men interested in the diseases of children. A. J. J.-B.

THE BLIND: THEIR CONDITION AND THE WORK BEING DONE FOR THEM IN THE UNITED STATES. By HARRY BEST, Ph.D. Pp. xviii + 763. New York: The Macmillan Company, 1919. Price $4.00.

THERE is no part of the work of the doctor, the educationalist and the social worker which is so difficult as that of work for the blind. The position of a number of people of varying ages and of different degrees of defect, whose loss has come on at different stages of their life and in vastly different modes, whose mental development varies widely often by very reason of the underlying condition which is primarily responsible for their blindness, all go to make up an exceedingly complex problem. Further, the number of the blind in relation to the general population is small, and they are scattered over the country so as to prevent any one person, except for those directly involved in the work of the blind, having any extensive experience of their needs or of their conditions. For these reasons a comprehensive work dealing with the conditions of the blind and the work being done for them in a great English-speaking country is of great value. The work presented by Dr. Best is one of unusual excellence. The detail with which the subject is examined, the care shown in the presentation of the facts, the

wide range of his information and the style of his writing all go to make his book on the blind a veritable text-book to which everyone who has any interest in the blind must turn for comparative information. The fact that his work deals with the blind in the United States does not militate against its usefulness to workers in this country or in the dominions beyond the seas. The conditions producing blindness, the difficulties of the blind, and, above all, their economic disabilities are very much the same the civilised world over.

The days of the blind beggars are over: we now know that we cannot bring happiness to the afflicted by a casual charity. True charity requires the establishment of the disabled in some sphere where their capabilities may be developed to the highest level they can attain, so that the knowledge of their handicap may be mitigated by a realisation that they are useful members of society and capable of adding to the store of the world's useful work, and of maintaining that reasonable spirit of independence good work can alone secure.

The work is divided into a series of parts and chapters, each dealing with some definite aspect of the problem as it affects children, adults, and males and females. To each of these is appended a bibliography covering references to monographs published in the States, and in this and other countries. The work is therefore not only a mine of information as collected and set out by the author, but a first-rate starting-point for inquiry on any particular aspect of the problem. We commend this book without reserve to those interested in the blind. N. B. H.

Child Welfare and the Teachings of Certain Dentists, School Medical Officers, Medical Officers of Health and other Medical Men. By J. Sim Wallace, D.Sc., M.D., L.D.S., formerly Dental Surgeon and Lecturer on Dental Surgery, London Hospital. London: Baillière, Tindall & Cox, 1919. Price 5s.

This forms a suitable sequel to the author's former work on 'Dental Diseases in Relation to Public Health.' The writer advocates the routine treatment of defective teeth at the earliest possible age. The correct management of the infant from birth until the age of two and a-half years constitutes the crux of the problem of how to prevent dental caries. Before the infant has cut any temporary teeth its diet ought to be mother's milk. Artificial substitutes are apt to prove detrimental to the developing teeth. Mouth-breathing affects adversely the form of the jaw, and this in turn influences the position of the teeth. In changing from milk to other foods at or about the ninth month, bread and crust with butter, or preferably toasted bread and butter, may be given as the first solid article of diet, provided it is not soaked in milk. Fruit-juice should be given long before solid food is introduced into the dietary in the case of bottle-fed infants.

Four meals a day suffice for an infant of about seventeen months. At the age of two and a-half years the writer only allows three meals—breakfast, luncheon and supper. Dr. Sim Wallace insists that dietetic principles underlie the prevention of dental caries, and that tooth-brushes and mouth-washes will effect but little without due regard being paid to those important principles. He therefore devotes several pages to a full consideration of these. In his chapter on the teaching of specialists he has an excellent "dig" at the physiologists, who, he rightly maintains, still continue

to propound erroneous doctrines regarding oral hygiene and the physiology of mastication. He does not give us the reason, but we all know that the physiologist depends for the elaboration of his theories on purely experimental evidence and changes his views much as he changes his coat. Referring to the altogether erroneous idea that the saliva is a starch-digesting secretion the writer says that "if physiologists would look into the subject . . . they would confer an inestimable boon on the community, and we might even yet be able to look on some of them as benefactors of humanity, instead of, as at present, regarding them as the greatest culprits with regard to what has been called by one of them that curse of modern days."

This is an original book, as most of Dr. Sim Wallace's are. He strikes out quite a new line of thought in relation to child welfare, and what he has written should be studied carefully by everyone who has to deal with infants and children. The specialist with prejudiced views on infant-feeding may be not a little shocked at some of the author's statements, but they are founded on sound principles and cannot readily be gainsaid. This is a book which we most earnestly commend to the notice especially of those having charge of child-welfare clinics. J. B.

A Text-Book of Hygiene for Training Colleges. By Margaret Avery, B.Sc.Lond., M.R.S.I. Methuen & Co. Price 7s. 6d.

Miss Avery has written an interesting little work on public and personal hygiene. Unlike most sanitarians she frankly acknowledges the failure of our present health services to increase the efficiency of the population; in fact she confesses that the large number of lives saved by our expensive municipal services simply add to the ranks of those who absolutely refuse to support themselves, and the amount of able-bodied outdoor relief is as great as ever. A good account is given of eugenics, and it is contended that short sentences on habitual criminals should be avoided, thus preventing the propagation of a criminal class, as a large proportion of our convicts come from a feeble-minded and criminal stock. Marriage should be prevented among deaf-mutes, epileptics and the mentally defective. In her remarks on fatigue the authoress insists on its earlier incidence in highly strung emotional children. No work should be undertaken before breakfast and there should be frequent play intervals. Students will be glad to note a tabular statement on the time of acquisition of various faculties in infants—smiling at 6 weeks, anger at 10 weeks, and humour at 3 months. On the importance of 10 hours' sleep between the ages of 13 and 16 years much stress is laid. In the section devoted to common ailments several mistakes and omissions occur. Thus pulmonary tuberculosis is said to be *always* caused by the human type of the bacillus. Again, 1 in 200 children are said to suffer from tuberculosis of the lungs—an inaccurate statement even if mediastinal gland disease is included. The death-rate from phthisis is stated to be diminishing, whereas on the contrary since the interference of the State in this domain of medicine it has again been on the up grade. No mention is made of the tuberculous nature of phlyctenular conjunctivitis although open-air schooling is strongly advocated. Epileptics are advised to confine themselves to an exclusive milk diet—a misprint perhaps for a vegetarian *régime*. No doubt these statements will be modified in subsequent editions of this well-written and excellently produced handbook. C. R.

Transactions of the American Pediatric Society. Thirtieth Session. Held at Lenox, Mass., May the 27th, 28th and 29th, 1918. Vol. XXX. Edited by Oscar M. Schloss, M.D. Pp. 331.

Among the thirty-eight papers here published, some contain valuable bibliographies, and others are of special interest on account of the rarity of the conditions described. The presidential address by Dr. La Fétra, of New York, deals with the "Neglected Period of Childhood," namely from two to six years of age. The period of infancy from birth to two years is fairly well looked after by infant milk stations or baby-feeding centres; and regular daily medical inspection at school covers the school age well. Wolbach and Morse record three cases of neuroblastoma sympathicum in an article well illustrated by microscopic figures and provided with select references. The essential diagnostic element in the tumour is the presence of fibrils, which represent the axis-cylinder processes. The structure of the metastases, as was shown by the liver in one case, may not prove the true nature of the growth. Kerley reports 26 cases of pyloric stenosis in private practice, treated by Rammstedt's operation, with 4 deaths—a mortality of 15·3 per cent. In the discussion on this paper, Dr. Emmett Holt stated that, out of 100 consecutive cases operated upon in hospital, the mortality among those that had vomited less than 4 weeks was 8·7 per cent., in contrast to 50 per cent. among those who had vomited more than 4 weeks. Dr. Carr publishes figures of microscopic sections of the colon in Hirschsprung's disease, showing tremendous increase in the width of the circular muscular coat from fibrosis and absence of the mucosa, its place being taken by vascular granulation-tissue. Dr. de Buys reports a case of *Balantidium coli* infection in a child, which, from his survey of the literature, appears to be the third on record; in a footnote he refers to a case in which emetine gave "spectacular results." Hess and Wager, by intravenous injection of the vesicles of chicken-pox, obtained protection against the disease in 37 out of 38 cases, and they believe that the infection enters by way of the respiratory tract The first case of infantile kala-azar in America is reported by Talbot and Lyon, in a Greek girl, aged 6 years, who came to America when three years old; as the condition was regarded as aplastic splenic anæmia splenectomy was performed; *Leishmania infantum* were then found, and after intravenous injection of tartar emetic the child appeared to be cured. In his interesting paper on migraine in childhood, Dr. Wilder Tileston refers to free phenol in the urine, and insists on the beneficial effect of a restricted protein diet.

H. D. R.

The United States Naval Medical Bulletin: Report on Medical and Surgical Developments of the War. By T. William Seaman Bainbridge, Lieut.-Commander, M.C., U.S.N.R.F. Washington: Government Printing Office, 1919.

The objects of this publication are best described in the "foreword":

"(1) To record the surgical lessons of the present war based on the experience of our Allies.

"(2) To secure anything likely to be of value to the U.S. Naval Medical School or helpful in the preparation of medical men for active service."

The book is a complete record of all the different methods of treatment for wounded men used during the war, with discussions and criticisms of the results obtained. It covers such varied subjects as the arrangement of camps, trench fever, conveyance of wounded men, anæsthesia, training of orderlies, re-education of disabled men, artificial legs and convalescent camps.

It is a most thorough and complete compilation, and does the greatest credit to those concerned in its formation. It is profusely and well illustrated, and cannot fail to be of the very greatest service both to the armies of the future, and to medical service in general.

One cannot close this review without congratulating the United States Government on their sound policy of publishing such a work, not only for the use of the Government departments concerned, but the world at large.

P. L. M.

National Health: From Magic, Mystery and Medicine to a National Health Service. By Ferdinand Rees, M.D., Hon. Physician, Royal Albert Edward Infirmary, Wigan. Bristol: John Wright & Sons, Ltd., 1919. Price 1s. 6d. net.

When the author says that the general practitioner will doubtless in time become accustomed to dealing with such a public body as the Insurance Committee and cease to fear it, we feel that he possesses little knowledge of the real feelings of the general practitioner towards such "public bodies." Further, when he goes on to say (p. 45) that "without doubt the Insurance Committee is a fine institution; it sees that justice is done to both patient and doctor," we entirely disagree. The Insurance Act, in our opinion, has proved a curse. It has made many medical men mercenary rather than scientific, and it has ruined the health of the nation as a whole. The Prime Minister deplored the fact that we are largely a "C3 nation." If we are, the fault lies at his own door. The object of this book is to give an "all-hail" to the Ministry of Health. Meantime, we are not oversanguine regarding it. All the same, Dr. Rees' book is well written, and, although personally we disagree with most of its dicta, we can recommend its perusal to our readers.

J. B.

Studies in Mental Inefficiency. Issued by The Central Association for the Care of the Mentally Defective (Incorporated), Queen Anne's Chambers, Tothill Street, S.W. 1, January the 15th, 1920. Vol. i, No. i. Price 9d. net.

This is a new issue, and should each month bring a valuable contribution to the literature on mental deficiency, coming as it does with the weight of the C.A.M.D. behind it.

This number contains a brief introduction to the history of the subject by Dr. G. E. Shuttleworth.

It also contains an excellent article by Dr. A. F. Tredgold on moral defectives, in which article he points out how very great is the importance of dealing with this class and how difficult is the problem; he shows that there are two types:

(1) Those who are mentally defective as this term is ordinarily understood.

(2) Those who are not mentally deficient within the ordinary conception of the term.

He also emphasises the lifelong nature of the defect, and states that in true cases the criminal propensities must be "undeterred by punishment."

Miss Lucy Fildes makes a strong case for individual studies and the lessons that can be learnt from them.

There are also short reports on the various activities going on in the way of institutions, legislation and literature.

A journal backed by such authority as this one is should certainly be in the hands of those who are interested in the study of the subject.

C. P. L.

Diseases of the Throat, Nose and Ear: For Practitioners. By W. G. Porter, M.B., B.Sc., F.R.C.S.Edin. Third edition. Fully revised under the Editorship of A. Logan Turner, M.D.Edin., F.R.C.S. Edin. With a photogravure portrait of Major Porter and 79 illustrations, 44 of which are in colours. Bristol: John Wright and Sons, Ltd. 1919. Price 12s. 6d. net.

We welcome the third edition of this text-book, which first appeared in 1912 (*vide* British Journal of Children's Diseases, 1913, x, p. 144). Major Porter was killed in action in June, 1917, and the present edition has been brought up to date by his colleagues in Edinburgh. In the chapters dealing with the examination of the ear the original text has been altered and enlarged by Dr. J. Milne Dickie, especially in connection with the vestibular tests. The sections dealing with suppuration in the labyrinth and the causes of nerve-deafness have been re-arranged and amplified by Dr. J. S. Fraser, who has also revised the chapter on chronic catarrhal deafness and otosclerosis. The chapters on the pharynx and naso-pharynx have been revised by Dr. Douglas Guthrie and those on the nose by Dr. W. T. Gardiner. The Editor is responsible for the section devoted to diseases of the larynx and the chapter on the nasal accessory sinuses.

J. D. R.

Oto-Rhino-Laryngology for the Student and Practitioner. By Dr. Georges Laurens. Translated by H. Clayton Fox, F.R.C.S.I. Bristol: John Wright & Sons, Ltd., 1919. Pp. x + 339; 592 illustrations. Price 17s. 6d. net.

The great feature of this volume lies in its attention to detail—a point which is often forgotten by the writers of English and American text-books. Even to the smallest procedure, such as making a wool mop, this application of detail is carried out, and, lest verbal description should be inadequate, it is assisted by illustrations of remarkable clearness. This makes Dr. Georges Laurens's work particularly adapted to students and practitioners, to whom we would recommend it most cordially. So far as our examination of the book goes, there is nothing that the general practitioner may be directed to carry out by the consultant which the former will not find fully described.

The translator has done his work well, and we have nothing but praise for the production.

M. Y.